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Threatened, Endangered and Sensitive Plant Program

Summary of FY-90 Accomplishments

USDA-Forest Service--Pacific Southwest Region

USDA-FOREST SERVICE--PACIFIC SOUTHWEST REGION (R-5)
THREATENED, ENDANGERED AND SENSITIVE PLANT PROGRAM
SUMMARY OF FY-90 ACCOMPLISHMENTS

The Region 5 FY-90 budget direction to the Forests stated:

> "Within those funds allocated for threatened, endangered, and sensitive species, strive to increase emphasis on sensitive plant management. Each Forest shall develop at least one interim or final sensitive plant management guide. All Forests shall provide a threatened, endangered, and sensitive (T/E/S) plant report by October 1, 1990 documenting accomplishments and out-year program needs. Plant activities include surveys, monitoring, updating sensitive plant lists, and funding FTE's (full-time equivalents) dedicated to the program including the hiring of seasonal botanists where appropriate. Implement cooperative and KV (Knutson-Vandenberg Act) habitat improvement projects for threatened, endangered, and sensitive plants. All Forests are encouraged to do at least one cost-share project for sensitive plants".
>
> "Within the Appropriations bill, the Congress earmarked specific funds to be spent on T/E/S plants. The following allocation is your start-point which is included in your Forest T/E/S allocation to meet this Congressional direction.
>
> Angeles NF ($12,000), Cleveland NF ($17,000), Eldorado NF ($17,000), Inyo NF ($12,000), Klamath NF ($20,000), Lassen NF ($16,000), Los Padres NF ($9,000), Mendocino NF ($9,000), Modoc NF ($9,000), Plumas NF ($20,000), San Bernardino NF ($20,000), Sequoia NF ($9,000), Shasta-Trinity NF ($20,000), Sierra NF ($12,000), Six Rivers NF ($18,000), Stanislaus NF ($9,000), Tahoe NF ($16,000), LTBMU ($5,000). Total $250,000.

PROGRAM HIGHLIGHTS

During FY-90, Region 5 of the Forest Service (California) has made significant gains in meeting Congressional intent in strengthening the sensitive plant program. Highlights of FY 90 accomplishments include:

--Hired 6 new full-time botanists in the Region. Botanical workforce now includes 19 full-time professional botanists.

--Hired 26 seasonal botanists to do sensitive plant survey work in FY 90.

--A combination of funding sources from cooperators, other resource functions, and appropriated dollars for the threatened, endangered, and sensitive plant management comprise the R-5 program. During FY 90, the total threatened, endangered, and sensitive plant program was $ 862,262.

--Increased program visability and advanced sensitive plant conservation with a 59 % increase in funding over FY 89 to do sensitive plant work.

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--Survey work on the National Forests yielded 575 new occurrences involving 78 of the 292 sensitive plants identified on the R-5 list. All field survey forms will be provided to the California Natural Diversity Data Base as outlined in our Memorandum Of Understanding with the Department of Fish & Game.

--Region 5 currently has 6 plant species federally listed under the Endangered Species Act of 1973 (as amended). In addition, 22 state endangered and two threatened species are listed under the California Endangered Species Act of 1984, and 28 species are listed as rare under the authority of the California Native Plant Protection Act.

--Volunteers also added significantly to the development of the sensitive plant program. This included a variety of groups including the Telephone Pioneers of America, U.S. Marine Corps, The Nature Conservancy, The California Native Plant Society, local school groups, and 23 individuals.

--Entered into a Memorandum of Understanding with the California Field Office of The Nature Conservancy, The Rancho Santa Ana Botanic Garden, and the California Native Plant Society to work cooperatively toward native plant species conservation issues.

--Received $22,000 in September 1990 from the State of California, Endangered Plant Program via "Endangered Species Tax Check-Off Funds". The work accomplished under this contract will occur in our FY 91 field season and will be reported in the FY 91 report.

--A Sensitive plant and ecologists workshop was conducted during March 20-23 1990 to strengthen the program and provide for an integrated system between Forests and other federal and state land agencies. Workshop participants also included botanists and resource specialists from several Forest Service Regions, the Bureau of Land Management, California Department of Fish & Game, The California Native Plant Society, The Nature Conservancy, the Rancho Danta Ana Botanic Garden, and a private nursery firm.

--Several forests in the Region developed "Sensitive Plant T-Shirts" as a way to promote and give the sensitive plant program more visability. Several of these T-shirts were joint ventures with our partners.

--A brochure titled "SENSITIVE PLANT CONSERVATION: GRADUATE STUDIES WITH A PURPOSE" was developed to reach faculty and graduate students of the unique opportunity to do studies for sensitive plants on the National Forests in California. This brochure will be mailed to every California college/university campus with a botany, ecology, forestry, and/or conservation biology program before January 1, 1991.

REGION 5 BOTANICAL PERSONNEL FOR THREATENED, ENDANGERED, AND SENSITIVE PLANT TAXA

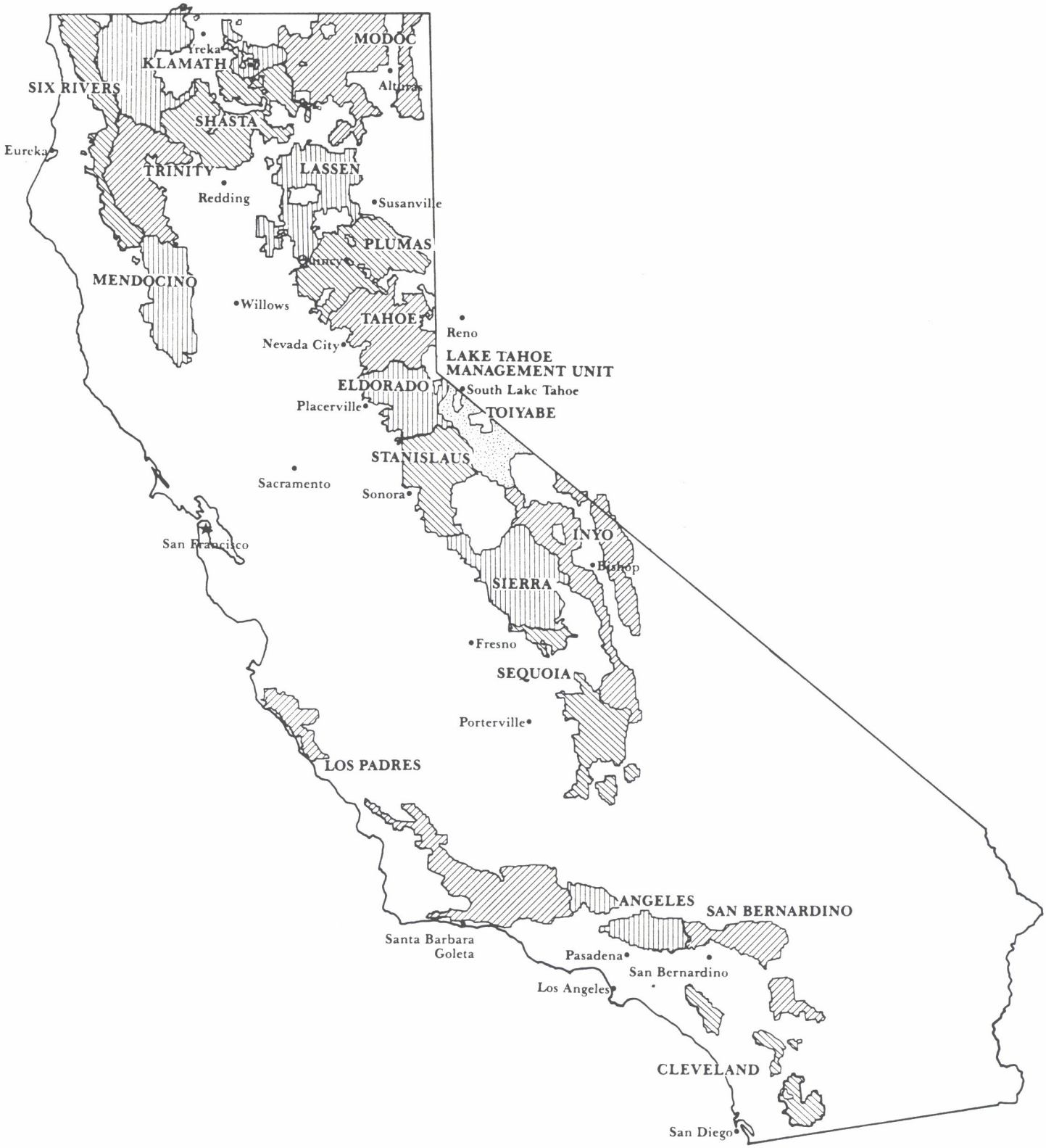
REGIONAL OFFICE, SAN FRANCISCO

JAMES R. SHEVOCK, Regional Botanist 415-705-2691

FOREST SENSITIVE PLANT COORDINATORS (KEY CONTACTS)

Each National Forest in the Region has one person who is directly responsible for the Sensitive Plant Program. This position is referred as the Sensitive Plant Coordinator. This person may be a botanist, ecologist, biologist, range conservationist, or the Resource Staff Officer. Listed below are the coordinators (C) and botanists (B) and ecologists (E) in Region 5 with threatened, endangered, and sensitive plant responsibilities.

CONTACTS	FOREST	PHONE
BILL BROWN (C)	ANGELES NF	818-574-5278
MIMA PARRA-SZIJJ (B & E)		818-574-5278
TOM WHITE (C & E)	CLEVELAND NF	619-743-4453
KIRSTEN WINTER (B)		619-743-4453
JOAN REYNOLDS (B)	ELDORADO NF	916-622-5061
CHARLIE VANDEMOER (C)	INYO NF	619-873-5841
BRIAN MILLER (B)		619-873-6841
BARBARA WILLIAMS (C & B)	KLAMATH NF	916-842-6131
JULIE KNORR (B)		916-842-6131
MAX CREASY (B & E)		916-493-2243
MARLA KNIGHT (B)		916-467-5757
HELEN SODERBERG (C)	LAKE TAHOE BASIN	916-573-2600
BETH CORBIN (C & B)	LASSEN NF	916-257-2151
MARK BORCHERT (C & E)	LOS PADRES NF	805-683-6711
DICK ENGLISH (C)	MENDOCINO NF	916-934-3316
DAVID ISLE (C)		916-934-3316
SYDNEY SMITH (C & E)	MODOC NF	916-233-5811
LINNEA HANSON (C & B)	PLUMAS NF	916-534-6500
MELODY LARDNER (C & B)	SAN BERNARDINO NF	714-383-5588
MAILE NEEL (B)		714-866-3437
PAM BROWN (C & B)	SEQUOIA NF	209-784-1500
JULIE NELSON (C & B)	SHASTA-TRINITY NF	916-628-5227
JO ANN FITES (B)		916-628-5227
JOHN LORENZANA (C)	SIERRA NF	209-487-5155
JOANNA CLINES (B)		209-487-5155
TOM JIMERSON (C, B & E)	SIX RIVERS NF	707-442-1721
LISA HOOVER (B)		707-442-1721
TOM BECK (C)	STANISLAUS NF	209-532-3671
DON BEHRENS (C)	TAHOE NF	916-265-4531
KATHY VAN ZUUK (B)		916-265-4531


MODOC
Yreka
KLAMATH
SIX RIVERS
Alturas
SHASTA
Eureka
TRINITY
LASSEN
Redding
Susanville
PLUMAS
Quincy
MENDOCINO
Willows
TAHOE
Reno
Nevada City
LAKE TAHOE
MANAGEMENT UNIT
ELDORADO
South Lake Tahoe
Placerville
TOIYABE
STANISLAUS
Sacramento
Sonora
INYO
San Francisco
Bishop
SIERRA
Fresno
SEQUOIA
Porterville
LOS PADRES
ANGELES
SAN BERNARDINO
Santa Barbara
Goleta
Pasadena
San Bernardino
Los Angeles
CLEVELAND
San Diego

ANGELES NF **********

1. **Did the Forest hire a botanist or seasonal(s) in FY 90?**

   The Forest Ecologist position was filled in FY-90 by Mima Parra-Szijj, a person strong in botanical skills. She has been designated as the Sensitive Plant Coordinator. The Forest Biologist will remain as the Sensitive Plant Program Manager.

2. **Did the Forest use volunteers to do plant work in FY 90?**

   No volunteers were utilized during FY-90 to do plant work.

3. **Amount and/or types of projects/acres surveyed for and numbers of biological evaluations written for sensitive plants in FY 90**

   Under an MOA with Rancho Santa Botanical Gardens, sensitive plant surveys were conducted at 25 project locations totaling 4137 acres. In addition, approximately 500 acres were surveyed as part of species management guide preparation for Opuntia basilaris var. brachyclada and Lillium parryi.

   Since no sensitive plants were located on any proposed projects in FY 90, No biological evaluations were written.

4. **Did the Forest develop an interim or complete a species management guide as directed in the FY 90 budget direction?**

   Species management guides are in preparation for Opuntia basilaris var. brachyclada and Lillium parryi and are due to be completed by January, 1991.

5. **Did the Forest complete a challenge cost-share project in FY 90? (provide specifics--who was the partner etc.)**

   No challenge cost share project was completed in FY90.

6. **$$ spent on TES plant program during FY-90 by the following funding sources**

Appropriated funds (all Forest Service sources & cost-share)	$ 24,000
Contributed funds & cost-share from non-Forest Service sources	$ 2,000 *
Knutson-Vandenberg funds	$ -0-
Timber receipts funds	$ 5,000
Total Forest Plant Program	$ 31,000

* Approximately 850 acres were surveyed for the presence of sensitive plants as part of Environmental Impact Statement preparation for the Gillibrand Soledad Canyon Mining Operation under contract with Tetra Tech, Inc. The proponent covered the cost ($2,000) of the survey and this is being shown as contributed funds.

7. Name of sensitive plant(s) and number of new occurrences discovered in FY 90

Opuntia basilaris var. brachyclada	12 new occurrences
Lilium parryi	11 new occurrences

8. Other activities

In addition to project level surveys and species management guide development, the following sensitive plants that have completed management guides were monitored as per guide direction:

Castilleja gleasonii, Claytonia lanceolata, Dudleya densiflora and Mahonia nevinii.

CLEVELAND NF **********

1. **Did the Forest hire a botanist or seasonal(s) in FY 90?**

   A full-time Forest Botanist, Kirsten Winter, was hired and began work on April 22, 1990. She replaced Lisa Croft who accepted the Forest Botanist position on the Ochoco National Forest (R-6).

   A permanent full-time Biological Technician with an extensive background in botany, Deveree Volgarino, was hired in March 1990 to work on the Descanso District. Deveree has worked on the district for the past 2 years as a seasonal biological technician.

   Considerable botanical expertise and assistance was also provided by Tom White (Vegetation Management Specialist, S.O.), Maribeth Gustafson (Resource Officer, Descanso RD now promoted to District Ranger, Trabuco RD), Ron Woychak (Wildlife Biologist, Palomar RD), and Fran Colwell (Resource Assistant, Trabuco RD).

2. **Did the Forest use volunteers to do plant work in FY 90?**

   The Telephone Volunteers of America spent 40 hours working on seed collection on the Descanso Ranger District. Debbie Pudoff volunteered 40 hours of time assisting with sensitive plant mapping on the Descanso Ranger District.

3. **Amount and/or types of projects/acres surveyed for and numbers of biological evaluations written for sensitive plants in FY 90**

   Forty-five biological evaluations covering nearly 5,000 acres were written in FY 90.

PROJECT TYPE	ACRES SURVEYED
TSI	360
Special Use permits	91
Prescribed burns	800
Fish and wildlife habitat improvement	15
T & E habitat improvement	33
Trail construction	37
Campgroung construction	50
Land exchange	2300
Civilian Conservation Corps site	175
Grazing allotments	600
Sensitive plant surveys	50

4. **Did the Forest develop an interim or complete a species management guide as directed in the FY 90 budget direction?**

   An interim species management guide for the federally listed endangered species, slender-horned spineflower (Dodecahema leptoceras) was completed by Lisa Croft. A habitat management guide for four montane meadow species is currently being written and will be completed by December 1990.

5. **Did the Forest complete a challenge cost-share project in FY 90? (provide specifics--who was the partner etc.)**

A cost-share project with the Boy Scouts of America was completed. The Boy Scouts provided the labor to construct a fence to protect the habitat of the federally listed slender-horned spineflower (Dodecahema leptoceras).

6. **$$ spent on TES plant program during FY 90 by the following funding sources**

Appropriated funds (all Forest Service sources & cost-share)	$ 39,000
Contributed funds & cost-share from non-Forest Service sources	$ 2,500
Knutson-Vandenberg funds	$ -0-
Timber receipts funds	$ 3,000
Total Forest Plant Program	$ 44,500

7. **Name of sensitive plant(s) and number of new occurrences discovered in FY 90**

PLANT SPECIES	# NEW OCCURRENCES
Argemone munita ssp. robusta	1
Astragalus deanei	2
Astragalus douglasii var. perstrictus	4
Astragalus oocarpus	1
Calamagrostis densa	2
Caulanthus simulans	10
Dudleya viscida	1
Grindelia hallii	4
Horkelia truncata	1
Lepechinia cardiophylla	1
Limnanthes gracilis ssp.parishii	9
Linanthus orcuttii	6
Monardella hypoleuca ssp. lanata	1
Thermopsis macrophylla var. semota	7

50 new sensitive plant locations were discovered in FY 90.

8. **Other activities**

The Forest Botanist, Kirsten Winter, led two California Native Plant Society trips on the Cleveland National Forest. The field trips emphasized sensitive plants and their habitat.

Deveree Volgarino, Biological Technician on the Descanso District, led a botanical field trip for Supervisor's Office-bound employees of the Cleveland National Forest. She explained the sensitive plant program and gave a tour of the habitat of the Laguna Aster (Machaeranthera asteroides var. lagunensis, a state-listed rare species.

The Forest Sensitive plant species Atlas and Database were updated. Copies of the Atlas and sensitive plant files were provided to the Trabuco District.

The Forest Botanist developed a plant list for an archaeological excavation site on the Forest.

Timber receipts were used to construct an exclosure to protect a large population of false-lupine (Thermopsis macrophylla var. semota) from impacts due to recreational use of its habitat.

Grazing exclosures were constructed on the Trabuco and Descanso RDs to allow monitoring of grazing effects on riparian vegetation.

On the Trabuco Ranger District, Tin Mine Canyon was closed to off-road vehicle use to allow the riparian area to recover.

Deveree Volgarino coordinated the collection of native plant seeds on the Descanso. Volunteers and Forest Service employees collected berries and seeds from 21 different species for use in road rehabilitation work on the forest. Ten miles of non-essential roads were closed and rehabilitated.

Kirsten Winter, Deveree Volgarino, and Fran Colwell attended an interagency meeting on issuing collecting permits for yucca and other species covered by the California Native Desert Plants Protection Act. In response to concerns voiced at the meeting, the Cleveland National Forest has reduced yucca collecting and has initiated a post-harvest monitoring program to assess the impacts of collecting.

Tom White, Kirsten Winter, and Hazel Gordon (Ecologist) attended an Interagency Natural Areas Coordinating Committee meeting in Irvine. The Forest was invited to discuss the proposed land exchange on the Trabuco Ranger District and its interaction with regional planning in Riverside and Orange Counties.

ELDORADO NF **********

1. **Did the Forest hire a botanist or seasonal(s) in FY 90?**

   Yes, seven seasonal employees were hired in FY 90. They were: Mark Williams, Patti Lesky, Robbin Barron, John Vollmar, Eric Nielsen, Garret Gibson and Maggie Wolfe.

2. **Did the Forest use volunteers to do plant work in FY 90?**

   Yes. Anetta Nether, Don Smith, Don Roberts, and Jeff Hart did volunteer work for the botany program: one volunteered 2.5 months to do sensitive plant surveys on the Placerville District, one acted as a mentor and a guide for 10 different days in the field, one volunteered 5 days of survey work for sensitive plants, and one surveyed and photographed Round Top Botanical Area for a brochure.

3. **Amount and/or types of projects/acres surveyed for and numbers of biological evaluations written for sensitive plants in FY 90**

   9 biological evaluations were written for 4 green sales, 4 district-wide salvage sales, and one ski area. Much of the potential habitat areas for sensitive plant species throughout the forest was surveyed in the timber base areas for salvage and green sales, totaling 20,863 acres of surveys for the fiscal year. This does not include acreage for cost share, KV, and other various projects.

4. **Did the Forest develop an interim or complete a species management guide as directed in the FY 90 budget direction?**

   No.

5. **Did the Forest complete a challenge cost-share project in FY 90? (provide specifics--who was the partner etc.)**

   Yes, 2 cost share projects were completed: The Nature Conservancy partnership carried out surveys and completed monitoring prescriptions for the state listed species Senecio layneae in the Traverse Creek Botanical Area.

   The Eldorado National Forest Interpretive Association and artist Gae Smith produced a sensitive plant T-shirt featuring the endemic lily Calochortus clavatus var. avius. The only cost to the forest was the time it took to coordinate the effort.

6. **$$ spent on TES plant program during FY 90 by the following funding sources**

	Appropriated funds (all Forest Service sources & cost-share)	$17,500.00
	Contributed funds & cost-share from non-Forest Service sources	$ 3,000.00
	Contributed labor (wages) from volunteers	$ 2,150.00
	Knutson-Vandenberg funds	$ 7,700.00
	Timber receipts funds	$ 1,500.00
*	Salvage Sale funds - used to hire seasonals	$45,000.00
	Total Forest Plant Program	$76,850.00

7. **Name of sensitive plant(s) and number of new occurrences discovered in FY 90**

Calochortus clavatus var. avius	25 occurrences
Navarretia prolifera ssp. lutea	8 occurrences
Silene invisa	21 occurrences

8. **Other activities**

Botanical meetings were held each month in one of the 5 botanical areas, surveys were performed and species lists compiled which covered approximately 3500 acres. Approximately 75 miles of trail were surveyed. Approximately 600 acres of ski area were surveyed.

Population ecology and percentage of flowering in Calochortus clavatus var. avius was accomplished along with monitoring on the response of this species to fire.

Meadow restoration of salvage operations using native grasses on site was completed comprising 40 acres.

Monitoring of a Navarretia and Silene population to timber harvesting practices.

INYO NF **********

1. **Did the Forest hire a botanist or seasonal(s) in FY 90?**

   Jim Andre was hired as a seasonal botanist to assist in the fall monitoring of Abronia alpina. Due to an un-availability of additional seasonal botanists, the plant program activities were accomplished by Forest biologists and biological technicians. Contracts for sensitive species interim guides and surveys were also undertaken.

2. **Did the Forest use volunteers to do plant work in FY 90?**

   As part of a challenge cost share project, six volunteers from The Nature Conservancy participated in sensitive plant surveys on over 2,000 acres this summer concentrating in the Tioga Pass area.

3. **Amount and/or types of projects/acres surveyed for and numbers of biological evaluations written for sensitive plants in FY 90**

   Over 2,500 acres were surveyed for plant occurrences, including completion of long term monitoring for Abronia alpina, Hackelia brevicula, and Oxytropis deflexia var. sericea. Three structures were completed to protect plant subpopulations, including exclosures designed to assess impacts of livestock grazing on population demographics. Three acres of Abronia alpina populations received protection from re-routing of livestock, recreation trails and elimination of camping sites.

   One species guide was completed, as well as an overall Sensitive Plant Program Management Plan, which will guide overall management direction and five year program objectives.

   A workforce analysis was completed and approved which highlights the need for the Forest to hire a full time, professional botanist solely to manage the Sensitive Plant Program.

4. **Did the Forest develop an interim or complete a species management guide as directed in the FY 90 budget direction?**

   A species management guide was completed for Abronia alpina. Compilation of existing monitoring data and completion of population surveys for Astragalus monensis will allow completion of a species guide for this plant in FY 91.

5. **Did the Forest complete a challenge cost-share project in FY 90? (provide specifics--who was the partner etc.)**

   Two surveys to determine the distribution of Arabis tiehmii and Lupinus duranii were undertaken with The Nature Conservancy in FY 91. These projects resulted in mapping of additional populations of both species as well as completion of surveys on over 2,000 acres.

6. **$$ spent on TES plant program during FY 90 by the following funding sources**

Appropriated funds (all Forest Service sources & cost-share)	$ 23,000
Contributed funds & cost-share from non-Forest Service sources	$ 1,000
Knutson-Vandenberg funds	$ -0-
Timber receipts funds	$ 4,500
Total Forest Plant Program	**$ 28,500**

Approximately $27,500 was expended in FY 90 in the Forest Sensitive Plant program. Approximately $3,000 was carried over into FY 91.

7. **Name of sensitive plant(s) and number of new occurrences discovered in FY 90**

Arabis tiehmii	four new occurrences, expanded range
Lupinus duranii	"several" new occurrences, all pumice flats occupied
Hackelia brevicula	four new occurrences
Oxytropis deflexia var. serica	expanded know population

8. **Other activities**

Close coordination with local interest groups, including the Northern Nevada Native Plant Society, The Nature Conservancy, and the Bristlecone Chapter of the California Native Plant Society was continued in order to foster relationships and promote potential challenge cost-share projects.

Presentations to the Forest management team which provided a review of the Sensitive Plant Program increased awareness of the program as well as resulting in approval of the Forest wide Sensitive Plant program Plan. In addition, this increase awareness resulted in approval of a workforce which will include a professional Forest Botanist in the future.

KLAMATH NF **********

1. **Did the Forest hire a botanist or seasonal(s) in FY 90?**

1 permanent Botanist/Ecologist, GS-408-9: Max Creasy.
(50% Happy Camp/Ukonom RD Botanist, 50% Six Rivers/Klamath Ecologist)
1 temporary Botanist, GS-430-5: Mark Steiger. Oak Knoll RD, 13 PP.

2. **Did the Forest use volunteers to do plant work in FY 90?**

1) 820 hrs @ equivalent GS-5 cost to gov't = $6645 value. Herbarium work.
2) 240 hrs @ equivalent GS-5 cost to gov't = $1940 value. Data base/field.
3) 8 hrs @ equivalent professional rate = $ 100 value. Art work.
Total = 1068 hours of volunteer work valued at $9075.
See below under "Other Activities" for expanded descriptions of work done.

3. **Amount and/or types of projects/acres surveyed for and numbers of biological evaluations written for sensitive plants in FY 90**

Timber sales	project area acres evaluated	15,828 acres
	actual acres field surveyed	3,089 acres
Sale types	19 green sales	
	6 fire salvage sales	
	6 insect salvage sale	
Mining claims	sensitive plant surveys	<5 acres
Trail reroute	sensitive plant surveys for PCT	10 acres
Riparian Inventory	sensitive plant surveys	305 acres
KV Admin. study	sensitive plants	30 acres

14 Biological Evaluations written in FY 90.

4. **Did the Forest develop an interim or complete a species management guide as directed in the FY 90 budget direction?**

No. The Forest has declared the Land Management Plan #1 priority and that is where the emphasis in planning has been. The Forest Botanist is active on the planning team for evaluation of botanical and vegetative resources. The Forest Plan will include strong standards and guidelines for protection and management of sensitive species, and direction to complete necessary Species Management Guides.

A two-forest review of the Phacelia cookei Species Management Guide was held to assess the status of the species and update the document.

5. **Did the Forest complete a challenge cost-share project in FY 90? (provide specifics--who was the partner etc.)**

The Forest completed a cooperative sensitive plant habitat improvement project with California Native Plant Society members using excess timber receipts funds, although the project was not officially conducted using a Challenge Cost-Share agreement. The project focussed on the removal of non-native weeds from 10 acres of Calochortus persistens habitat. There has been an apparent decrease in the numbers of this State listed rare

plant due to increasing invasion by the aggressive non-native weed Isatis tinctoria. Control and test plots were established to measure the effeciveness of removal of this weed by hand pulling of its biennial root. Manpower for this project was composed of Forest Service botanists, seasonal Forest Service crews, and local CNPS volunteers.

6. $$ spent on TES plant program during FY 90 by the following funding sources

FOREST TES PROGRAM:		
Appropriated funds (all Forest Service sources & cost-share)		$ 69,345
Contributed funds & cost-share from non-Forest Service sources		$ -0-
Contributed labor, valued at current professional rates		$ 9,075
Knutson-Vandenberg funds		$ 3,975
Timber receipts funds	(Calochortus persistens Hab. Improv)	$ 2,000
	(other)	$ 8,880
	TOTAL	$ 93,275
FOREST BOTANY PROGRAM (non-TES):		
Appropriated funds	(Riparian Vegetation Inventory)	$ 3,750
	(Air Quality lichen monitoring)	$ 125
	(Soil Resource Inventory Program)	$ 2,040
	(Post-fire vegetation monitoring)	$ 800
Timber receipts funds	(District Ecosystem Classification & Biodiversity Analysis)	$ 5,000
Knutson-Vandenberg funds	(Post-fire riparian inventory & reveg.)	$ 760
	TOTAL	$ 12,475
	Total Forest Plant Program	$105,750

7. Name of sensitive plant(s) and number of new occurrences discovered in FY 90

Arctostaphylos klamathensis	1
Epilobium siskiyouense	1
Lewisia cotyledon var. howellii	3
Pedicularis howellii	2
Potentilla cristae	1
Trillium ovatum ssp. oettingeri	6

Species Managed under Forest Species Management Guidelines

Cypripedium californicum	1
Lilium wigginsii	12

8. Other activities

DEVELOPING FUNDING - We are working toward building a strong and diverse budget for the botany program on the Klamath NF. A great deal of work was accomplished by the botanists this year using funding sources other than TES/wildlife or timber support money:

* Assistant Forest Botanist worked with District Range/Watershed/Fisheries staff to complete a multi-resource inventory of riparian areas along 25 miles of the main stem and all perennial tributaries of Horse Creek on Oak Knoll RD. Collected vegetation data, developed riparian veg type descriptions, and mapped veg types for the project area to be used in all future planning in the watershed. (Work done with fisheries funding. Project may result in additional funding in the future.)

* Botany program has taken on responsibility for establishing air quality lichen monitoring plots on the Forest in the Marble Mountain Wilderness. Additional field work was done this FY to collect high elevation lichen specimens for identification and to locate areas suitable for establishing additional plots. (Work done with air quality funding. Project may result in additional funding in the future.)

* District Botanist/Ecologist served as Acting Resource officer for three months, providing key input to timber sales on biodiversity issues, Pacific Yew populations, and Port Orford Cedar root rot disease risk assessment. He also provided field verification of the Port Orford Cedar plant association key on the Six-Rivers and Klamath Forests. (Work done with Timber Receipts funding.)

* District Botanist was responsible for testing various methods of revegetating on an area with highly erodible and sterile soils. Using district crews, he collected native grass and forb seeds, stratified and innoculated as necessary, and established test plots using different species mixes. (Work done with watershed funding. Project may result in additional funding in the future.)

* District Botanist conducted a range inventory of grass species in a watershed covering 5 compartments and prepared a map of grass species distribution in the watershed. (Work done with range funding.)

* District botanist worked with soil scientist to map vegetation as part of an initial Forest effort at Coordinated Resource Inventory. (Work done with soils funding. Future funding from this source is anticipated.)

* Developed photographic vegetation display for use at National Speleological Society convention and two County fairs. (Work done with visitor information/public affairs funding.)

VOLUNTEERS - Additional work was completed by the excellent volunteers we were lucky enough to have:

* Mark Steiger, a volunteer with a botany degree completely reorganized the Forest Herbarium. He spent over 800 hours checking identifications, typing herbarium labels, and mounting over 400 specimens that were collected on the Forest from 1978-1988. He created a data table listing all the specimens housed in the Forest Herbarium, and wrote queries for efficient retrieval of the information in various formats.

* The Botany program utilized Elke Kuffner, a volunteer from Germany for 6 weeks to assist in field work, computer organization of the sensitive plant data base, and native plant seed collection.

* Volunteer artist Jennifer Pentrack designed the stencil that will be used on our new T-shirts highlighting the Forest's biodiversity and Sensitive Plant Program.

STRENGTHENED PARTNERSHIPS - both internal and external.

* KNF botanists were asked by the Nature Conservancy to participate in their annual spring vegetation monitoring for a week on Santa Cruz Island. This was good exposure for Nature Conservancy volunteers and Forest Service cooperative efforts.

* Botanist represented the Forest at regional Interagency Natural Areas Committee meetings involving Cal Fish and Game, BLM, and adjacent NFs.

* Forest conducted field review of proposed Botanical Area with County botanist.

* District Botanists conducted a two day training session in plant identification for District silviculture and timber management personnel.

* Botanist is on the Forest New Perspectives strategy work group.

* Cooperating with PSW research project which will analyze natural landscape patterns on unmanaged areas of the Klamath NF for use in future project- and forest-level land management planning.

* Continued data collection and field inventory of an apparently-rare genetically mutant form of tan oak (Lithocarpus densiflorus forma attenuata) for cooperative investigation with PSW.

* Worked with UCLA and UCB researchers studying distribution of Abies lasiocarpa and Cupressus bakeri in the Klamath Mountains.

* Gave forest biodiversity presentations to public groups interested in forest planning; Congressmen's aides, Rotary club, two LMP open house sessions.

* Environmental Education presentations/field trips: Local Audobon chapter, 4th grade class Fort Jones Elementary School, Kidder Creek Environmental Camp, Local Girl Scout Troop, Cub Scout day camp.

FOREST PLANNING -

* Forest Botanist is a member of the Forest ID Team developing the KNF Land Management Plan. Coordinating info and writing sections of the documents on Biological diversity, Sensitive plants, Research Natural Areas, Special Interest Areas including Botanical Areas. Member of alternative development team, monitoring plan development group, riparian management working group and chair of biodiversity/corridor working group.

* District botanist provided input to Forest LMP effort: wild and scenic river corridor vegetation descriptions; assistance in Botanical, and Research Natural Area write-ups; development of species lists for those areas.

* Coordinated a 2-day workshop of KNF planning team members and ecologists from other NFs, PSW and PNW research, and universities to develop analysis process for biological diversity in forest plan process.

* Worked with area ecologists, silviculturists, and contracted with consulting conservation ecologist to develop baseline "natural conditions" information for the Klamath to use in forest planning process.

* Reviewed potential RNA candidate area with PSW representative on regional RNA committee.

OTHER ACTIVITIES-

* District botanist provided input to revegetation projects; prescribed a native seed mix for wildlife and watershed revegetation projects.

* District botanist continued post-87 fire riparian recovery monitoring.

* District botanist continued post-87 fire vegetation transect monitoring.

* District botanist acted as District Recycling Coordinator.

* Updated Scott River District Sensitive Plant Field Guides.

* Worked on GIS information needs assessment process for Sensitive plant management, biodiversity and ecosystems management.

* Botanist represented the Forest at Regional ecologists field review session.

LASSEN NF **********

1. **Did the Forest hire a botanist or seasonal(s) in FY 90?**

   The Lassen did not hire any seasonals or new hire botanists in FY 90. Forest botanical personnel consists of one full-time Forest Botanist and 3 District Sensitive Plant Coordinators (collateral duty).

2. **Did the Forest use volunteers to do plant work in FY 90?**

   No.

3. **Amount and/or types of projects/acres surveyed for and numbers of biological evaluations written for sensitive plants in FY 90**

   Almanor Ranger District: 8 timber sales, 2 biomass thinnings, 1 fuel reduction project, and 1 snowmobile staging area for about 4400 acres were surveyed.

   Eagle Lake Ranger District: 9 timber sales for about 1750 acres were surveyed.

   Hat Creek Ranger District: 6 timber sales, 1 reservoir project, 1 wildlife burn, and 1 vegetation management project for about 1950 acres were surveyed.

   Total: 23 timber sales and 7 miscellaneous projects for about 8100 acres were surveyed. Project Sensitive Plant survey documentation forms were completed for each project surveyed.

   Biological Evaluations: Sensitive plants were found in two timber sales and biological evaluations have been written.

4. **Did the Forest develop an interim or complete a species management guide as directed in the FY 90 budget direction?**

   A species management guide for Orcuttia tenuis, done in conjunction with Gary Schoolcraft of the BLM, was signed in January 1990.

   Fieldwork was completed using excess timber receipt funding to gather information for a species management guide for Mimulus pygmaeus.

   Forest Botanist met with Plumas NF botanists to start working on an interim species management guide for Lupinus dalesiae (The Plumas is the lead forest on this project).

5. **Did the Forest complete a challenge cost-share project in FY 90? (provide specifics--who was the partner etc.)**

No

6. **$$ spent on TES plant program during FY 90 by the following funding sources**

Appropriated funds (all Forest Service sources & cost-share) SO	$ 24,000
Almanor RD	$ 1,000
Hat Creek RD	$ 2,000
Eagle Lake RD	$ 1,500
Contributed funds & cost-share from non-Forest Service sources	$ -0-
Knutson-Vandenberg funds	$ -0-
Timber receipts funds	$ 5,000
Total Forest Plant Program	$ 33,500

7. **Name of sensitive plant(s) and number of new occurrences discovered in FY 90**

Sensitive plants	New occurrences	
Asplenium septentrionale	1	(new species for Almanor RD)
Lupinus dalesiae	1	
Mimulus pygmaeus	5	

Extension of previous occurrence:

Arabis constancei	1

8. **Other activities**

Training materials for Forest personnel were developed. They include:
--Sensitive Plant field guides with descriptions, range and habitat information, diagrams, and photographs of each species.
--Summary table on Special Interest Species with habitat description, range, status, and other information.
--Summary of manual objectives, definitions, policies, and other information on Sensitive and Special Interest Species.
--Instructions on prefield (before survey) review steps.
--Instructions on field surveys.
--Project Sensitive Plant Survey Documentation forms.
--Potential Sensitive Plant habitat checklist.
--Sensitive Plant Atlases for each district and the SO.

Training sessions were held on each district to train District personnel to conduct Sensitive Plant surveys. These training sessions included both office meetings and field trips, and were well attended by District personnel.

District Sensitive Plant Coordinators were designated to coordinate sensitive plant needs and serve as the primary link between the Forest Botanist and the District, and maintain district files and atlases.

Additions were made to the Sensitive Plant and Forest wildflower slide collections.

Additional collections were made of specimens for the Forest Herbarium.

A presentation was made to the Lassen Forest Management Team on the Sensitive Plant program.

A poster about Lassen National Forest Sensitive Plants was developed to raise the awareness of both the public and forest personnel, with a brief explanation of Sensitive Plant management, and diagrams and photographs of each of the Lassen's Sensitive Plants.

The following Sensitive Plants were monitored:

Species	# of occurrences	Type of Monitoring
Arabis constancei	1	visual
Asplenium septentrionale	1	numerical
Calochortus longibarbatus	1	numerical
Eryngium mathiasiae	3	visual
Gratiola heterosepala	2	visual
Lupinus dalesiae	7	visual
Mimulus pygmaeus	14	9 visual, 5 numerical
Orcuttia tenuis	5	1 visual, 4 numerical
Penstemon personatus	1	visual
Scheuchzeria palustris	2	1 visual, 1 numerical
Sedum albomarginatum	1	visual
Senecio eurycephalus var. lewisrosei	1	visual

The Forest Botanist serves as Forest Biodiversity Coordinator and has been involved in LMP revisions and developing old growth retention area guidelines for seral stage diversity requirements.

The Forest Botanist also serves as RNA and SIA Coordinator and shares information on these special areas between the Forest and the RO, PSW, and ecological survey (and other report) contractors.

The Forest Botanist also functions as Air Quality Coordinator, and attended a workshop on lichen identification to learn how to set up plots for air quality monitoring in Class I Wilderness areas, and other air quality workshops.

A presentation was made and plant walk led for a local high school class.

Met with California Native Plant Society and other groups' representatives to discuss resolution of appeals on a timber sale EA.

Attended field trips with other botanists from the Plumas NF, BLM, and California State University, Chico to discuss potential Sensitive Plant species additions.

Partnerships were utilized with BLM botanists to monitor Sensitive and Special Interest Species that the Lassen Forest has in common with the Susanville and Redding Districts of BLM.

Information has been gathered for revisions to the Forest Sensitive and Special Interest Species lists.

Field surveys and monitoring of Mimulus pygmaeus were completed using supplemental FY 89 timber receipts to gather information for a species management guide. About 3200 acres were surveyed. Field surveys resulted in 5 new occurrences, 2 of which are quite extensive; previously only 7 occurrences were known for California, some of which have not been re-located in recent years.

LAKE TAHOE BASIN MANAGMENT UNIT **********

1. **Did the Forest hire a botanist or seasonal(s) in FY 90?**

   Yes, the LTBMU hired a seasonal botanist, Antony Kundert (GS-7), from June 3rd to the end of September 1990 to work specifically on the T/E/S program. Also, several Watershed department seasonals, a hydrologist, and a wildlife biologist helped with sensitive plant surveys. This made the program more of a departmental effort and got a lot more people involved.

2. **Did the Forest use volunteers to do plant work in FY 90?**

   No, volunteers were not used in the T/E/S program.

3. **Amount and/or types of projects/acres surveyed for and numbers of biological evaluations written for sensitive plants in FY 90**

   A complete inventory of all sensitive plant populations on Forest Service land within the Basin was accomplished for FY 90. In addition, 6 timber salvage sales, two stretches of the Rim hiking trail, two proposed O.H.V trails, two land exchange sites, and one construction site were surveyed for the existence of sensitive plants.

Sensitive plant surveys	105 acres
Timber sale surveys	2459 acres
Rim Trail surveys	40 acres
OHV surveys	40 acres
Land Exchange surveys	60 acres
Construction site survey	1 acre
TOTAL	2705 acres

   There were 13 biological evaluations completed in FY 90.

4. **Did the Forest develop an interim or complete a species management guide as directed in the FY 90 budget direction?**

   Revamped and updated 3 interim management guides (originally completed in August of 1981) and developed 2 additional ones.

UPDATED GUIDES	DATE COMPLETED
1) Draba asterophora var. asterophora	9/90
2) Draba asterophora var. macrocarpa	9/90
3) Lewisia pygmaea spp. longipetala	9/90
NEW GUIDES	
4) Arabis rigidissima var. demota	9/90
5) Rorippa subumbellata	9/90

5. **Did the Forest complete a challenge cost-share project in FY 90? (provide specifics--who was the partner etc.)**

No challenge cost-share projects were instituted.

6. **$$ spent on TES plant program during FY 90 by the following funding sources**

Appropriated funds (all Forest Service sources & cost-share)	$ 3,000
Contributed funds & cost-share from non-Forest Service sources	$ -0-
Knutson-Vandenberg funds	$ -0-
Timber receipts funds	$ 5,000
Total Forest Plant Program	**$ 8,000**

7. **Name of sensitive plant(s) and number of new occurrences discovered in FY 90**

SENSITIVE PLANT	NEW OCCURRENCES
Arabis rigidissima var. demota	3
Draba asterophora var. asterophora	1
Silene invisa	1

8. **Other activities**

Sensitive Plant Field Guide of the Lake Tahoe Basin was completed on 6/90 by Julie Perrochet.

A meeting was held on July 1990 at the Basin to find out the status and coordinate activities for the management guide on Rorippa subumbellata that is now being prepared by the California State Lands Commission.

The second full year of monitoring the planted populations of Rorippa subumbellata was accomplished. Population numbers show an upward trend but the gathering of biological data continues to prove erratic. This is because the stakes, which mark the individual plants, are being removed.

Added 30 plants to the herbarium.

Overall, all the existing sensitive plant populations showed a substantial increase in population numbers.

LOS PADRES NF **********

1. **Did the Forest hire a botanist or seasonal(s) in FY 90?**

   Yes, one seasonal botanist- Lisa Twing- to work on a Sensitive Plant Guide.

2. **Did the Forest use volunteers to do plant work in FY 90?**

   No.

3. **Amount and/or types of projects/acres surveyed for and numbers of biological evaluations written for sensitive plants in FY 90**

   12 biological evaluations were written. One project surveyed: Cuestra road mining rehab. Other projects include: mining, road rehab, OHV trails, trail construction, and special uses.

4. **Did the Forest develop an interim or complete a species management guide as directed in the FY 90 budget direction?**

   The species management guide for Thermopsis macrophylla var. agnina is about 3/4 completed.

5. **Did the Forest complete a challenge cost-share project in FY 90? (provide specifics--who was the partner etc.)**

   No.

6. **$$ spent on TES plant program during FY 90 by the following funding sources**

Appropriated funds (all Forest Service sources & cost-share)	$ 9,000
Contributed funds & cost-share from non-Forest Service sources	$ -0-
Knutson-Vandenberg funds	$ -0-
Timber receipts funds	$ -0-
Total Forest Plant Program	$ 9,000

7. **Name of sensitive plant(s) and number of new occurrences discovered in FY 90**

Carex obispoensis	5 new occurrences
Chorizanthe brewerii	7 new occurrences
Monardella palmeri	1 new occurrence

8. **Other activities**

   1. Set up a long-term monitoring design for Chlorogalum purpureum reductum and completed the Cuesta Ridge Botanical area flora.

   2. Negiotiated the CNPS appeal to the Forest Plan which will significantly improve the sensitive plant program.

   3. In the process of negotiating a conservation easement for Eriophyllum lanatum var. hallii with a developer near the Forest boundary.

MENDOCINO NF **********

1. **Did you hire a botanist or seasonal(s) in FY 90?**

   No.

2. **Did you use volunteers to do plant work in FY 90?**

   Yes. On May 15, 1990, Mike Finley helped perform sensitive plant reconnaissance work on the Spring Salvage Sale. That day Dave Isle discovered the tenth known population of Lewisia stebbinsii in a new habitat for the species.

   On June 11, 1990, Niall McCarten monitored the permanent transects he established within four Lewisia stebbinsii populations during his 1988 Challenge Cost-Share study.

3. **Amount and/or types of projects/acres surveyed for sensitive plants**

Number	Type Project	Acres Surveyed	Biological Eval. Input
1	Carbaryl Spray	1	1
1	Co-Op Brush Crush/Burn	40	0
1	Land Exchange (4.6 Ac)	0	1
4	Hill Bill WL Projects	44	1
3	Progeny Site Veg.Mgt.	15	1
1	Revegetation	17	1
12	Timber Sales	303	8
1	Trail	0	1
	TOTAL	420	14

4. **Did you develop an interim or complete a species management guide as directed in the FY 90 budget direction?** - No.

   The Forest is progressing toward a composite species management guide in the form of a "Habitat Management Guide for Serpentine-Endemic Species". Niall F. McCarten and Chris Rogers will complete a Challenge Cost-Share "Habitat Management Study of Rare Plants and Communities Associated with Serpentine Soils" in November 1990. This study will complement previous single-species studies done on the Forest by Niall F. McCarten, James D. Jokerst, Marc Hayes, F. Thomas Griggs and Janet E. Dibble. Species management direction for five of our currently listed Forest sensitive plants will be included in the habitat management guide for serpentine soil-endemics.

5. **Did the Forest complete a challenge cost-share project in FY 90? (provide specifics--who was the partner etc.)** - No.

   McCarten and Rogers have completed the field study, photography, plant and data collection for more than 5,000 acres of the Forest serpentine habitat study mentioned above. One progress payment was made, and FY 90 money has been obligated for the completed study. Our Cost-Share partner for this study is the East Bay Chapter of the California Native Plant Society.

When the report is completed in November 1990, it will include maps and descriptions of the vegetative community types and sensitive plants, along with photos and recommended management prescriptions for maintenance and enhancement of the serpentine-endemic Forest sensitive plants.

6. $$ spent on TES plant program during FY 90 by the following funding sources

Appropriated funds (all Forest Service sources & cost-share)	$11,302.58
Contributed funds & cost-share from non-Forest Service sources	$ 4,824.00
Knutson-Vandenberg funds	$ -0-
Timber receipts funds	$ 6,876.65
Total Forest Plant Program	$23,003.23

7. Name of sensitive plant(s) and number of new occurrences discovered in FY 90

TAXON	NUMBER OF NEW OCCURRENCES DISCOVERED
Allium (possible new species)	1
Eriastrum brandegeae	2
Hesperolinon drymarioides	2
Lewisia stebbinsii	1

8. Other activities

Dave Isle provided some "on-the-job-training" in sensitive plant identification to those employees who were working in potential sensitive plant habitat.

On 5/10/90, Dave Isle showed a revegetation project ID team the sensitive species Lewisia stebbinsii, in the vicinity of a project. While we were there, Arnold James, the Forest Soil Scientist, used his tile shovel to help me make a collection of an Allium. I couldn't key it out, so I sent a sample to Dr. Dale W. McNeal at the University of the Pacific, a noted expert on this genus. He determined that the species it most closely resembled, would have been "quite out of range for that species". It also had some distinctive characteristics that suggested "the possibility that this is an undescribed species." However, Dr. McNeal needs to see the plant in the field in 1991 and analyze a larger sample of specimens before making a final determination. A brief field training session may have turned up a special onion!

On 6/5/90, Upper Lake District's Watershed Improvement Crew (John Beale, Mark Dorn and Chris Dittman) learned the distinguishing characteristics of Lewisia stebbinsii from a population in the vicinity of their project work.

On 7/11/90, Upperlake District Range and Wildlife employees Lori Pacheco and Janet Seabolt visited a Hesperolinon drymarioides and H. adenophyllum population in the vicinity of one of the District's type conversion projects, while helping S.O. Wildlife Biologist Barbara Chaney and me collect native perennial grass seeds in that area.

The Mendocino had lightning fires in August. As a tractor boss on the Elkhorn fire, I was able to survey much of the tractor line for sensitive plants ahead of the tractors and before rehabilitation work was started.

The Forest Hydrologist and I did follow-up monitoring of grass-seeded and non-seeded areas on the 1988 Powderhouse fire. The Antirrhinum subcordatum that had reappeared in an unseeded, historic population site after the fire did not grow this season.

On 3/13/90, Wildlife Biologist Chirre Keckler and Dave Isle gave a presentation to the Maxwell Grammar School to help prepare them for a "Nature Bowl" competition. We used freshly collected materials as well as older visual aids, and tried to give them some authentic examples of some of the ecological interactions they were studying. The class was especially interested in Threatened and Endangered species. It was their first entry in the competition, and their third and fourth grade (all girl) team placed second out of the seven teams in the semi-finals.

On 4/27/90, Dave Isle gave a presentation to the grade school children attending an "After School Club" at the Willows Library. They had requested an "Earth Day"-flavored theme that would encourage protection and appreciation of the Forest. The visuals collected and used emphasized the diversity and specialness of our living forest resources.

Phil Rundell and Lela Schultz are completing an ecological survey for the proposed Wilder Ridge Chamise Chaparral RNA. When Dave Isle visited the site with them on 5/4/90, a new population of Eriastrum brandegeae was found, and on 5/5/90 they found a second sensitive plant population.

On 5/15/90, Isle found the tenth known Lewisia stebbinsii population during reconnaissance work on the Spring Salvage Sale. The population was in a predictable soil type, but it was not in a vegetative community previously known to support the species: low, shrubby Brewer Oak! This opened up the possibility for new populations in areas that have been overlooked until now.

Craig Dremann, of the Redwood City Seed Company, helped teach interested Forest employees (Forestry Technician Melinda Carlson from Corning District, Horticultural Forestry Technician Gary Norcross from Chico Tree Improvement Center, Wildlife Biologist Barbara Chaney from the Supervisors Office and Dave Isle) native perennial grass seed collection and processing techniques in a one-day "collect-fest", on 6/23/90. Lemmon's Needlegrass (Stipa lemmonii), California Oatgrass (Danthonia californica), and Pine Blue Grass (Poa scabrella) were collected. California Fescue (Festuca californica), Blue Wild Rye (Elymus glaucus), Squirreltail (Sitanion hystrix), Meadow Barley (Hordeum brachyantherum) and others were checked for ripeness and scheduled for our 7/11/90 follow-up collection, when Barbara Chaney and Dave Isle collected seeds with Lori Pacheco and Janet Seabolt. Gary Norcross, took a video of these efforts, to help capture some of the techniques on film. This was our "grass roots" effort to begin to collect, preserve and perpetuate some of a valuable but often overlooked segment of our Forest's natural diversity.

Molly Fuller, Corning District's Resource Officer, utilized commercial native grass seed in some of their meadow restoration projects this year.

Jeff Applegate, Acting Stonyford District Resource Officer, and Bob Faust, the Forest Hydrologist, are using some native perennial grasses in their erosion control and revegetation projects. Jeff has California Melic (Melica californica) and Pine Blue Grass (Poa scabrella) bare root seedlings being grown commercially for revegetating an OHV-damaged area. It will be a tough test for the seedlings. Dave Isle collected the seed for the project locally in 1989.

Bob Faust tried some commercial native perennial grass seed in a 1989 experimental revegetation pilot project with little success. This year I joined him up on the mountain with both the Upper Lake District's and his own watershed crews for a day of native perennial grass seed collection. Over six pounds of valuable Lemmon's Needlegrass (Stipa lemmonii) was collected on 7/12/90 for use as part of a seed mix for a meadow and watershed revegetation project. S.O. Hydrologist Dennis Doncaster tended and cured the collected seeds in bags that were spread all around his home.

Upper Lake District Silviculturist Jim Harvey has programmed some of their KV timber sale funds for FY 91 for the collection and use of native grasses for stabilizing roads within a sale area. This is a welcome move away from the use of standard seed mixes of introduced species and a great opportunity to give native grasses a "chance to shine", while they help prevent soil erosion.

This fourth year of drought expressed itself through reduced numbers and sizes of some of the annual species of low elevation Forest sensitive plants, but the extra late spring rains made it an unusually good year for native perennial grass growth. Dave Isle was able to make some additional small seed collections on private and Forest land in anticipation of upcoming experimental and project use of natives on the Forest. Dave Isle distributed to the Districts a resource package containing some commercial sources of native grass seed and propagation information to encourage their use of native grasses.

MODOC NF **********

1. **Did the Forest hire a botanist or seasonal(s) in FY 90?**

   Yes. The Forest hired John Hale as a GS-7 botanist for the months of June, July and August.

2. **Did the Forest use volunteers to do plant work in FY 90?**

   No.

3. **Amount and/or types of projects/acres surveyed for and numbers of biological evaluations written for sensitive plants in FY 90**

   Several project surveys were conducted, including surveys for timber sales, recreation trail alignments, ski areas, etc. No sensitive plants were located on these projects, so no biological evaluations were written.

4. **Did the Forest develop an interim or complete a species management guide as directed in the FY 90 budget direction?**

   No. Emphasis this year was to update existing sensitive plant population and occurrence information. The status of these populations had not been field checked for several years, and the Forest's sensitive plant information was woefully out of date. In the process of field checking old population records, several previously unknown populations of two plants (Calochortus longebarbatus var. longibarbatus and Eryngium mathiasiae) were found and recorded. Some areas of concern were discovered also. Updated plant population information was mapped at the Forest and Quad level, and site survey forms were prepared for the California Natural Diversity Data Base. Surveys and population updates were coordinated with neighboring Forests, including the Fremont N.F. in southern Oregon (R-6). If the Forest is funded at this level in FY 91, a target will be to prepare a species management guide for at least the highest priority plant, Calochortus longebarbatus var. longebarbatus.

5. **Did the Forest complete a challenge cost-share project in FY 90? (provide specifics--who was the partner etc.)**

   No.

6. **$$ spent on TES plant program during FY 90 by the following funding sources**

Appropriated funds (all Forest Service sources & cost-share)	$ 9,000.00
Contributed funds & cost-share from non-Forest Service sources	$ -0-
Knutson-Vandenberg funds	$ -0-
Timber receipts funds	$ 5,000.00
Total Forest Plant Program	$14,000.00

7. **Name of sensitive plant(s) and number of new occurrences discovered in FY 90**

Calochortus longibarbatus var. longebarbatus 10 new populations

Eryngium mathiasiae 2 new populations

Updated population occurrence information on all eleven plants on the Forest sensitive species list.

8. **Other activities**

Five acres of Calochortus longebarbatus var. longebarbatus habitat (in three exclosures) was fenced in FY 90. Timber reciepts dollars were used for this project.

PLUMAS NF **********

1. **Did the Forest hire a botanist or seasonal(s) in FY 90?**

The Plumas has a permanent full-time Forest Botanist, Linnea Hanson. For the FY 90 field season the Plumas hired 8 Temporary Professional Botanists, 2 Biological Technicians and 1 Forestry Technician to work in the Sensitive Plant Program. The Temporary Professional Botanists were hired on 5 Districts to do sensitive plant surveys for timber sales and KV monitoring to assess the impacts of timber sale activities on sensitive plant species. The Plumas also hired an assistant Forest Botanist, Diane Ikeda, but she resigned to take a job with the Endangered Plant Program, Dept. of Fish and Game, State of California.

On the Plumas, each District Ranger assigns a Sensitive Plant Coordinator to coordinate all district botanical needs and serves as the primary link between the district and the Forest Botanist. The coordinators have provided needed support for the program on their district spending between 5-30% of their time depending on the district, time of year and the demands of the program. These individuals need to also be recognized for their efforts in making the sensitive plant program a success on the Plumas. The district sensitive plant coordinators for FY90 were:

Beckwourth RD-Mike Foster, Range Technician
Greenville RD-Gary Rotta, Wildlife Biologist
La Porte Rd-Art Rohrbacher and Ginelle O'Connor, Wildlife Biologists
Oroville RD-Vince Carter, Forester
Milford RD-Glenn Seaberg and Ceci Dale-Cesmat, Range Conservationists
Quincy RD-Dave Johns, Forestry Technician

Six Temporary Professional Botanists returned from last year. Larry Janeway, Biology graduate student at Chico State, returned to the Beckwourth RD. Barbara Castro and Robin Fallscheer, graduates with Masters in Biology from Chico State, returned to the Oroville RD. Stacy Scott, graduate in Natural Resources from Chico State, returned to Milford RD. And Jim Battagin, graduate in Natural Resources from UC Berkeley and Richard Dwerlkotte, recent graduate in biology from Humboldt State, returned to the Quincy RD.

La Porte RD hired Robin Bencie and Amy Hiss, recent Biology graduates from Humboldt State. Oroville RD hired Kevin Main, Forestry student at the University of Florida, and Jacque Jurewicz, Biology student at the University of Wisconsin at Stevens Point, as Biological Technicians to help conduct plant surveys for timber sales. Gloria Galloway, Butte College student, was also hired by the Oroville RD on a part-time basis to assist Barbara Castro, who worked part-time in sensitive plant monitoring.

On the Greenville RD, the Botanists from the Quincy RD and Oroville RD were each detailed for a week to assist with sensitive plant surveys on salvage sales: Barbara Castro and Jacque Jurewicz from Oroville District and Richard Dwerlkotte and Jim Battagin form Quincy District.Other sensitive plant surveys were done by Gary Rotta, District Wildlife Biologist.

On the districts, personnel besides botanists have been trained to conduct plant surveys and have prepared Biological Evaluations to be reviewed by the District and Forest Botanists. Mike Foster, Range Technician, conducted surveys for projects on the Beckwourth RD. On the La Porte RD, Mary Lovejoy, Archaeologist, Bob Novotny, Sale Administrator, Brad Seaberg, Small Sales Officer and Art Rohrbacher and Ginelle O'Connor, Wildlife Biologists, conducted plant surveys needed for timber sales, especially salvage sales. On the Oroville RD, the Archaeologists surveyed salvage sales for sensitive plants. On the Quincy RD, Dave Johns, Forestry Technician, and the Salvage Sale crew completed sensitive plant surveys for timber sales.

2. **Did the Forest use volunteers to do plant work in FY 90?**

The three volunteers that have worked in Botany in the past on the Plumas have continued during the FY 90 field season. Toni Fauver has continued with the Flora of the Lakes Basin Recreation Area, Marjorie McNairn has continued with the Flora of the Valley Creek Natural Area and Jerry Foote has continued his interest in the Butterfly Valley Botanical Area. Lowell Ahart and Vern Oswald, local botanical experts, contributed technical advice on species of questionable taxonomic validity.

3. **Amount and/or types of projects/acres surveyed for and numbers of biological evaluations written for sensitive plants in FY 90**

On the Plumas, each district is responsible for the initial surveying for sensitive plant species for their proposed projects. If sensitive species are located then the Forest Botanist is consulted, as needed, for technical advise. This season, the surveys for sensitive plants have been concentrated in proposed salvage sales. The Forest Botanist wrote 20 and reviewed, edited and signed 52 additional Biological Evaluations mainly for salvage sales. Besides assisting with technical advise on district projects, the Forest Botanist conducted the rare plant survey for the Greenhorn Creek Project for the Plumas Corporation and was the Interdisciplinary Team Leader of the State Lands Trade. KV Monitoring has continued to assess the impact of timber sale activities on sensitive plant species on approximately 6,000 acres with 8 transects involved.

Listed below are the projects, acres of surveying and monitoring and number of B.E.'s accomplished by district:

Beckwourth RD:

Projects surveyed:	
*Grizzly Insect Salvage Project Area	1,000 acres
*Davis Salvage Timber Sale	220 acres
*Mills Salvage Timber Sale	200 acres
Canyon Salvage Timber Sale	205 acres
Emigrant/Powderhouse Timber Sale	1,050 acres
Diamondback Timber Sale	295 acres
Range Improvement Projects	100 acres
Watershed Improvement Projects	75 acres
Gold Lake Lodge Resource Damage Survey	5 acres
TOTAL:	3,150 acres

*Biological Evaluations were written for these projects as well as:

Chris Timber Sale
Threemile Gap SSTS
Layman Fire Salvage Sale

KV Monitoring:
Jackson Timber Sale Lupinus dalesae timber harvest, site prep and planting responses.

Greenville RD:
Projects Surveyed:
*Salvage sales:

Ward Insect SSTS	Boundary SSTS
Grade Insect SSTS	Peel SSTS
Wart SSTS	#1 Heli SSTS
Rattle SSTS	Lobo SSTS
Wendy SSTS	W.C. SSTS
Monk SSTS	Walker Fire Salvage
Long SSTS	

*Biological Evaluations were written for these projects as well as:

Oliver Timber Sale	Wolf Timber Sale
Fred Timber Sale	Last Chance Timber Sale
Eastside District B.E.	

KV Monitoring:
Bullfrog Sale Penstemon personatus monitoring-Transplant site: Noted an increase of 21 plants or 60% from the 1989 data. Cutbank Transect: Noted a decrease of 15 plants or 11% from the 1989 data.
Dark Ravine Sale Cypripedium fasciculatum Monitoring for presence or absence in a clearcut.
East Transect: Noted a decrease of 12 plants or 48% from the 1989 data.
West Transect: Noted a decrease of 2 plants or 15% from the 1989 data.
Dutch Hill Sale Lupinus dalesae Monitoring-Plot #1: Noted a decrease of 46 plants or 37% from the 1989 data. Plot #2: Noted a decrease of 16 plants or 19% from the 1989 data. Unit has not been logged.
Kirkham Sale Cypripedium fasciculatum Monitoring-Established a new CYFA monitoring plot adjacent to an uncut shelterwood unit.

La Porte RD:
Projects Surveyed:
*Gold Mining Claim-core drilling and drill pad access 2 acres
*Timber Salvage Sales 3,780 acres

Dutch SSTS	Etna SSTS
Fowler Peak SSTS	Moors SSTS
Fingerboard SSTS	Big Peak SSTS
Switchback SSTS	Snake Lake SSTS
Table Mtn SSTS	Acme SSTS
Turkeytown Salvage Area	Flatbush SSTS
Colgate SSTS	Buckhorn SSTS
Enterprise SSTS	Inn SSTS
Springeview SSTS	Grouse SSTS

Green Timber Sales: 663 acres

Onion Valley Timber Sale	Barkers Cabin Timber Sale
*Harrison II Timber Sale	*Milk Ranch Small Sale
*Milk Ranch Home Use Woodlot	*Cottage Timber Settlement
*Pachyderm Thinning	*Long Term Productivity Study-Challenge Site

*Ponderosa Winter Range Burn	80 acres
*Table Mountain Meadow Restoration	25 acres
*Pinkard Creek Meadow Restoration	25 acres
*Tamarack Flat Fence	25 acres
*County Road 511 Reconstruction	3 miles
*Brafford Special Use Permit	1 acre
TOTAL:	4,601 acres and 3 miles

*Biological Evaluations were written for these projects.
KV Monitoring:
Lava/Cascade Timber Sale Vaccinium coccinium rereads.
Blue Nose Timber Sale Silene invisa monitoring rereads.
Fields Ridge Timber Sale Fritillaria eastwoodiae initial monitoring.
Willow Creek Timber Sale Vaccinium coccinium initial transect monitoring.

Oroville RD:
Projects Surveyed:

Flea Timber Sale	460 acres
Haskins Valley Timber Sale	80 acres
Arkansas Ravine Timber Sale	1914 acres
Toland Ridge Timber Sale	12 acres
Mt. Ararat Salvage Sale	100 acres
TOTAL:	2,566 acres

*Biological Evaluations were written for these projects as well as:
Oro-Quincy Highway Wildcat Timber Sale
Topper Insect Salvage Sale

KV Monitoring:
Kellogg Timber Sale Penstemon personatus reread
Cub Timber Sale Penstemon personatus rereads and data analysis
Hardquartz Timber sale Penstemon personatus rereads and computer-aided statistical analysis of data.
Triangle Timber Sale Fritillaria eastwoodiae post-logging monitoring andpreliminary impact assessment.
Galen Timber Sale posting of Area Controlled signs at all known populationsof Fritillaria eastwoodiae including monitoring sites.
Salvage sale Penstemon personatus range-transect rereads.

Milford RD:

Projects Surveyed:

*Generic SSTS	350 acres
*Willow SSTS	150 acres
*Con SSTS	300 acres
*McClellan	500 acres
*15 Minute Hill SSTS	120 acres
*Thompson Helicopter	150 acres
*Squaw SSTS	260 acres
King SSTS	275 acres
TOTAL:	2,105 acres

*Biological Evaluations were written for these projects as well as:

Triangle SSTS	Dry Flat SSTS
Johnson Hill SSTS	Doe SSTS
Doyle SSTS	Cottonwood Campground
Rogers SSTS	

KV Monitoring:
Designed and wrote monitoring plan for the Meadow View Peak SSTS for Ivesia aperta. Completed first year monitoring.
Designed and implemented the fence exclosure for the Sugarloaf SSTS for Ivesia aperta. Millie Allen, Range Foreman, and her crew built the exclosure. Completed the first year monitoirng.

Quincy RD:
Projects Surveyed:

*Hungarian Timber Sale	443 acres
*Spike Timber Sale	176 acres
Black Gulch Timber Sale (incomplete)	826 acres
*Greenhorn Fire Salvage	300 acres
*Ser Can Helicopter R/W and landings	25 acres
TOTAL:	1,770 acres

*Biological evaluations were written for these green sales as well as:

Cherry Timber Sale	Grizzly Timber Sale
Caribou Timber Sale	McFarland Tin Timber Sale
Elizabethtown Timber Sale	Tussock Timber Sale

Salvage Timber Sales:

SSTS	MBF	SSTS	MBF
*Smith	232	*Gultch	102
*Massack	150	*Slate	190
*Boyle	101	Clare	151
*Twill	700	Ider	24
*Bury	91	Miller	149
*Diggins	80	McMill	130
			2,100

KV Monitoring:
Queen Lily Timber Sale Senecio eurycephalus var. lewisrosei initial monitoring established.
Queen Lily Arabis constancei revisited units and to confirm species was undisturbed during logging.

Red Hill Timber Sale Senecio eurycephalus var. lewisrosei initial monitoring established.
Johnson Timber Sale Lupinus dalesae reread post logging.
Big Creek Timber Sale,, Miller Fork Timber Sale, McFarland Timber Sale, Tussock SSTS Penstemon personatus rereads and data analysis. Applied a chisquare independence of attributes test to data collected in '88,'89,and '90.
Eagle Timber Sale Penstemon personatus initial monitoring of milacre plots established.
Eagle Timber Sale Arabis constancei initial monitoring of semi-permanent one square meter quadrats established and photo-points revisited.

4. **Did the Forest develop an interim or complete a species management guide as directed in the FY 90 budget direction?**

A species management guide has begun on the Quincy Lupine (Lupinus dalesae) with the Lassen NF with Mike Foster taking the lead effort for this project. The draft species management guide for Sierra Valley Ivesia (Ivesia aperta) with the Tahoe and Toiyabe NF has been reviewed and the necessary changes will be incorporated.

5. **Did the Forest complete a challenge cost-share project in FY 90? (provide specifics--who was the partner etc.)**

Three Challenge Cost-share projects were completed. A survey to determine the extent of Ivesia webberi in the Plumas and Tahoe National Forests was completed with The Nature Conservancy. The three surveyors for this project were Tom Fraser, Biology graduate from UC Davis, Tom Berridge, Biology Graduate from Sacramento State and Carol Witham, Rare Plant Coordinator for Sacramento Chapter of the California Native Plant Society.

Isozyme analysis of variations in Fritillaria eastwoodiae and it's closely related species was conducted with the Rancho Santa Ana Botanic Garden.

The Beckwourth RD hosted a demonstration of native grass seed gathering techniques and manual were contributed by the Redwood City Seed Company. Craig Dremann from the Redwood City Seed Company showed participants how to collect, clean, store, test and disseminate native grass seeds. Participants from Plumas, Klamath and Eldorado National Forests as well as Dept. of Water Resources, Caltrans, Plumas Corporation and Loyalton High School attended.

6. $$ spent on TES plant program during FY 90 by the following funding sources

Appropriated funds (all Forest Service sources & cost-share)			$94,592.93
Forest Botanist	NFWF	$40,169.00	
Assistant Forest Botanist	NFWF	2,447.14	
Beckwourth RD	NFTM	11,000.00	
Greenville RD	NFTM	1,500.00	
La Porte RD	NFWF	2,750.00	
	NFTM	5,780.00	
Oroville RD	NFTM	17,273.12	
Milford RD	NFTM	6,216.74	
Quincy RD	NFTM	7,456.93	
Contributed funds & cost-share from non-Forest Service sources			$ 5,000.00
The Nature Conservancy		$2,000.00	
Rancho Santa Ana Botanic Garden		$2,000.00	
Redwood City Seed Company		$1,000.00	
Knutson-Vandenberg funds			$34,296.07
Forest Botanist		$6,000.00	
Beckwourth RD		1,000.00	
Greenville RD		725.00	
La Porte RD		5,350.00	
Oroville RD		8,695.00	
Milford RD		3,510.58	
Quincy RD		9,020.49	
Timber receipts funds			$ 5,000.00
The Nature Conservancy		$2,000.00	
Rancho Santa Ana Botanic Garden		$2,000.00	
Redwood City Seed Company		$1,000.00	
Total Forest Plant Program			**$138,889.00**

7. Name of sensitive plant(s) and number of new occurrences discovered in FY 90

SPECIES	OCCURRENCES
SENSITIVE:	
Arabis constancei	11
Astragalus lentiformis	6 with 4 location extensions
Lupinus dalesae	23 with 3 location extensions
Ivesia aperta	1
Ivesia sericoleuca	1 location extension
Penstemon personatus	1 and range extensions
Silene invisa	5
Vaccinium coccinium	6 with 6 location extensions
SPECIAL INTEREST:	
Cypripedium fasciculatum	4 and 3 location extensions
Cypripedium montanum	2
Drosera rotundifolia	1 with 1 location extension

8. Other activities

Beckwourth RD:
--Conducted a survey and assessment of damage to Silene invisa that resulted from improper timber harvest at Gold Lake Lodge. This included design of a program and cost estimates for restoration of damaged parts of the population.
--Aided the University of Nevada, Reno/United State Dept. of Agriculture researchers on a nutrient cycling/physiology of riparian species study at Grizzly Valley by providing taxonomic expertise for meadow species, especially sedges and rushes.
--Hosted a visit by Teresa Sholars, who is doing the treatment of the perennial lupines for the new Jepson Manual, to visit Lupinus dalesae sites on Quincy and Beckwourth RD. The visit was joined by Butte County botanists Vern Oswald and Lowell Ahart and Quincy, Beckwourth and Forest Botanists.
--Began assessment of the potential addition of Carex geyeri as sensitive or special interest with Forest Botanist.
--Mapped Corydalis caseana (CNPS list 4) mostly in conjunction with regular sensitive plant surveys, for later assessment of management implications.

Greenville RD:
--Developed a District Sensitive/Special Interest Plant Atlas, delineating survey areas and plant locations.

Oroville RD:
--Organized and updated herbarium record-keeping, including prototype DG program for producing herbarium label.s
--Carried out statistical analysis of 10 years of monitoring data on Penstemon personatus and Vaccinium coccinium and evaluated success of several different monitoring methodologies.

Milford RD:
--Researched and wrote a violations/rehabilitation report for an unprecedented resource damage incident involving Ivesia aperta.
--Wrote report defending the Biological Evaluation of the Eagle Fire, concerning the Silene invisa survey for the Eagle Fire Appeal.
--Began assessment of the Washoe Pine stands on the district with Forest Botanist.
--Updated and expanded district sensitive plant atlas.

Quincy RD:
--Established 28 photopoints to monitor changes of wetland flora (specifically Darlingtonia californica) in Butterfly Valley Botanical Area.
--Established Cypripedium fasciculatum exclusion in unit 25 of the Eagle Timber Sale with Sierra Pacific Industries. Exclusion of the largest known location of this species in California (2,000+ plants) was designated and flagged. The 100% cruise of the 6 acre exclusion volume was 444MBF. The replacement area was 10 acres and the 100% cruise of the replacement volume was 500MBF.
--Collected native grass seed at Smith Lake to seed 3/8 mile of ripped road northwest of lake. Enough seed was collected to seed disturbed areas on Slate Creek head-cut rehabilitation project. The Quincy RD Resource Crew and Botanists collected and sowed the seed.
--Field trip with Plumas County Recreation Department to Butterfly Valley Botanical Area.

--Louisiana Pacific Timber Sale-Flagged a small population of Cypripedium montanum for protection on private land adjacent to Butterfly Valley Botanical Area.

Forest Botanist:

Intraforest:

-Conducted Forest Sensitive Plant Program Meeting with District Sensitive Plant Coordinators.

-Presented annual update of the current status of the Plumas Sensitive Plant Program for the Plumas Leadership Team.

-Conducted training session on Beckwourth, Greenville, La Porte, Oroville and Quincy RD for field personnel.

-Conducted training session for Temporary Botanists and Biological Technicians.

-Wrote forest newspaper articles to highlight Plumas National Forest Sensitive Plant Program.

-Formulated updated watch list of species for possible addition or deletion from Forest Sensitive and Special Interest plants.

-Continued development of the Mud Lake RNA checklist with Plumas Botany personnel.

-Revised Goals, Roles and Responsibilities and Interim Management Prescriptions for the Sensitive Plant Program.

-Field trip to Valley Creek Natural Area to review draft flora with Marge McNairn and Plumas Botany Personnel.

-Attended Lichen workshop and identification course and conducted field meeting to develop lichen monitoring for air pollution in the Bucks Lake Wilderness.

Interforest:

-BLM/USFS Botanist and Ecologist Workshop-presented talks on Biological Evaluations and marketing visibility of program through T-shirts. Helped organize banquet and forest awards.

-Received award for the most outstanding sensitive plant program in R5 for FY 89.

-Presented talks on Prioritization of Species and Minimum Characteristics to Monitor by Level of Intensity at BLM/USFS-R6 Threatened, Endangered and Sensitive Plant Monitoring Workshop.

-Presented talk on New Horizons and Issues in Threatened, Endangered and Sensitive Plants at the USFS-R6 Range Vegetation Management Workshop.

-Attended WO Biologists Shortcourse by the Environmental Law Institute on Threatened, Endangered and Sensitive Species Management.

-Field trip with Beth Corbin, Lassen Forest Botanist and Vern Oswald to review Saniclua tracyi for possible listing as sensitive or special interest.

-Attended Toiyabe National Forest Sensitive Plant Training Session in Dog Valley with Kathy Van Zuuk, Tahoe Forest Botanist, to discuss Ivesia webberi.

-Field trip on the Tahoe to visit their locations of Vaccinium coccinium and in return Kathy Van Zuuk visited Plumas locations of the species.

Other agencies, conservation groups, universities and industry:

-Conducted Sedum albomarginatum transplant monitoring with Caltrans Botanist and Environmental Specialist.

-Developed brochure for universities and colleges to conduct graduate studies on sensitive plants in California National Forests with Maile Neel,

Assistant Botanist on the San Bernardino National Forest.
-Conducted field trip with Mike Baad and Jack Troutwine to identify Fritillaria eastwoodiae and habitat for the State Lands Trade survey.
-Assisted Dept of Water Resources with selection of contractors for Silene invisa monitoring study for the proposed cloud seeding project. Conducted field trip with contractors to identify Silene invisa, habitat and select locations.
-Conducted field trip to Dog Valley with Nature Conservancy to identify Ivesia webberi for cost share survey of the species.
-Attended monthly California Native Plant Society, Mt. Lassen Chapter meetings.
-Gave talks on the Plumas National Forest Sensitive Plant Program for the UOP Alumni Camp and Earthwatch Summer Program.
-Identified plants along Heinz Creek for Concow School Adopt-a-Trail.
-Contacted taxonomists to try to determine validity of Vaccinium coccinium and Fritillaria eastwoodiae.
-Field trips with Vern Oswald to visit known Fritillaria eastwoodiae locations to understand species taxonomy.
-Published talk that was presented at the 15th Annual Natural Areas Conference on Species Management for the Closed-lip Penstemon in the proceedings of the conference; Ecosystem Management: Rare Species and Significant Habitats.

SAN BERNARDINO NF **********

1. **Did the Forest hire a botanist or seasonal(s) in FY 90?**

   The SBNF continued to fund 1.6 FTEs in the Botany and Sensitive Plant Program. No additional seasonals were hired. In addition, Big Bear District employees Robin Butler (Wildlife Biologist), Terry Nenn (Clerk Typist) and Kelly Thornburgh (Forestry Technician) assisted with several surveys and habitat protection projects.

2. **Did the Forest use volunteers to do plant work in FY 90?**

   Volunteers contributed significantly to the sensitive plant program by assisting with maintenance of sensitive plant habitat protection projects, monitoring sensitive plant populations and constructing an interpretive trail. The Friends of Big Bear Valley Preserve, U.S. Marine Corps and students from a local high school (Chataqua High School) were especially helpful.

   Jacques Devaud, President of the Big Bear Valley Preserve and professional illustrator, contributed artwork and maps for several interpretive brochures.

   Ron Coleman, Cheryl Plumb and Matt Nichols volunteered to search for additional locations of Malaxis brachypoda in the San Gorgonio Wilderness. Ron Coleman had rediscovered locations of this plant as a volunteer for the California Department of Fish and Game in FY 89

3. **Amount and/or types of projects/acres surveyed for and numbers of biological evaluations written for sensitive plants in FY 90**

Plant surveys were conducted on a variety of projects including:

Timber sales
Special use events
Campground developments
Ski areas
Utility lines
Mining
Land exchanges
Prescribed burns
Water developments
Hiking Trails
Organizational Camp developments
OHV routes
Landfill expansion
Road realignments
Trespass activities

Approximately 37 projects were surveyed in FY 90 on the SBNF, covering approximately 4000 acres. We wrote 4 biological evaluations, are writing 4 more and gave input into 8 biological evaluations written on the districts.

4. **Did the Forest develop an interim or complete a species management guide as directed in the FY 90 budget direction?**

The Pebble Plain Habitat Management Guide and Action Plan was finalized during FY 90. Status updates and management direction are included for seven sensitive species: Arenaria ursina, Eriogonum kennedeyi ssp. austromontanum, Arabis parishii, Echinocereus engelmannii var. munzii, Mimulus purpureus, Mimulus exiguus, and Castilleja cinerea. This was a challenge cost share project initiated in FY 89.

5. **Did the Forest complete a challenge cost-share project in FY 90? (provide specifics--who was the partner etc.)**

The SBNF worked on 3 challenge cost-share projects in FY 90 in addition to completing the one mentioned above.

1) Pebble Plain and Wet Meadow Monitoring in the Big Bear Basin - This project continued the monitoring of the pebble plain and wet meadow habitats in the Big Bear basin in cooperation with The Nature Conservancy. TNC contribution - $2075, FS contribution - $3100.

2) Self-guiding Nature Trail System and Brochure - This project involved development of a trail system and brochure for interpretation of the North Baldwin Lake area, including the Baldwin Lake Ecological Reserve (California Department of Fish & Game land) and the North Baldwin Lake and Holcomb Valley Special Interest Area (San Bernardino National Forest). This was a cooperative effort between the San Bernardino National Forest, the Friends of Big Bear Valley Preserve and The Nature Conservancy. TNC contribution - $1717 (includes value of labor donated by students at Chataqua High School), FS contribution - $2500 (includes value of donations by the US Marine Corps and the Friends of Big Bear Valley Preserve).

3) Geographic Variation in Munz's Hedgehog Cactus - This project is a study of the variation in a sensitive species, Echinocereus engelmannii var. munzii, throughout its range. Information gained from this study will pertain to distribution, habitat characteristics and rarity of this taxon. This project is a cooperative effort between the San Bernardino National Forest, The Nature Conservancy and the California Native Plant Society. FS contribution - $5900, TNC contribution - $7500 (includes $2500 contributed labor), CNPS contribution - $575. The Cleveland National Forest assisted by completing surveys in the Laguna Mountains. This project was initiated in FY 90 and will be continued next fiscal year.

6. **$$ spent on TES plant program during FY 90 by the following funding sources**

Appropriated funds (all Forest Service sources & cost-share)	$50,000
Contributed funds & cost-share from non-Forest Service sources	$16,000
Knutson-Vandenberg funds	$ -0-
Timber receipts funds	$ -0-
Total Forest Plant Program	$66,000

7. **Name of sensitive plant(s) and number of new occurrences discovered in FY 90**

Fourteen new sensitive plant population occurrences were found on the SBNF.

Species	Number of New Occurrences
Horkelia wilderae	1
Layia ziegleri	1
Lesquerella kingii ssp. bernardinus	2
Lilium parryi	1
Opuntia basilaris var. brachyclada	1
Oxytheca parishii var. goodmaniana	3 - See Note Below
Oxytheca parishii var. cienegensis	2 - See Note Below
Streptanthus bernardinus	3

Note - Oxytheca parishii var. goodmaniana and Oxytheca parshii var. cienegensis were only recently located on the Forest and will be added to the sensitive plant list.

8. **Other activities**

Support to Other Programs and Out-Service Proposals:

- Reviewed and revised for SBNF mining reclamation standards and performance criteria.

External Communication and Marketing:

- Developed an interpretive display under the Eyes on Wildlife Program to be placed in a visitor center at North Baldwin Lake. This display will include a map showing good wildlife and plant viewing locations around the Big Bear area in addition to text and photographs interpreting some of the most easily seen and/or unique species and habitats. All preparatory work was completed in FY 90 but actual development and installation of the display be completed in FY 91.

- Provided input on interpretive signs developed for the Scenic Byways Program and for a display on our disjunct aspen groves.

- In conjunction with the Plumas NF and Regional Office a brochure targeting graduate students to encourage studies on sensitive plant species was designed and completed.

- Gave interpretive talks to general audiences, and elementary and university classes regarding the Botany and Sensitive Plant Program.

- Participated in Interagency Natural Areas Coordinating Committee efforts for natural areas conservation in southern California.

- Participated in an Earth Day Celebration in conjunction with The Nature Conservancy and the Friends of Big Bear Valley Preserve. This celebration dedicated a visitor center at California Department of Fish and Game's Baldwin Lake Ecological Reserve and recognized the cooperation that has

helped conserve the unique habitats supported on the Reserve and the adjacent Forest Service Special Interest Area. Forest Supervisor Charles Irby presented one of the speeches during the dedication ceremony.

- Assisted the Girl Scouts of America in plant identification for and environmental education workshop at Camp Nawakwa on the San Gorgonio Ranger District.

Internal Communication and Marketing:

- We developed long- and short-term goals for the Botany and Sensitive Plant Program on the San Bernardino National Forest. Four main overall goals were identified in this process in addition to more specific goals and objectives. The overall program was presented to the Management Team.

- Wrote two articles on sensitive plants for the employee newsletter "The Bear Facts": Rare Orchid Rediscovered on the San Bernardino National Forest and Lemon Lilies in the Limelight.

- Continued to develop slide and photo reference files of plants and habitats on the forest.

- Monitoring reports from FY 89 monitoring were used as examples of good ways to report monitoring results to line officers at the National Workshop on Monitoring and Evaluation.

- Work on District sensitive plant reference books continued and these books are near completion.

Expand Knowledge of Sensitive Plants and their Habitats:

- Initiated update and revision of the SBNF Sensitive Plant Atlas. This revision will be completed during FY 91.

- Sensitive plants on the San Bernardino National Forest vary in their rarity and tolerance to different types and intensities of disturbance. In FY 90 we began stratifying the list to allow for these differences in assessing impacts of proposed projects. This stratification and a more detailed outline of acceptable activities for each species will be developed in FY 91.

  Assisted in a Challenge Cost Share project between Region 3 and The Arizona Nature Conservancy by collecting lemon lily leaves (Lilium parryi) for electrophoretic analysis. Southern California populations will be compared with those being studied in Arizona.

- Developed project proposal and preliminary study plan for a Botanical Investigation of Thelypodium stenopetalum, a federally endangered species. Information gained from this investigation will aid in developing a recovery strategy for this species. The proposal was successful in obtaining funding from the California Department of Fish and Game. Field work will begin in Spring 1991.

- Assisted graduate students studying sensitive plants on the Forest in their activities. Terry Eagan from California State University at Fullerton is studying habitat characteristics of the endangered slender-horned spineflower. Hugo Cota at Rancho Santa Ana Botanic Garden and Claremont Graduate School is studying speciation in the genus Echinocereus, including the sensitive E. engelmannii var. munzii.

- Established three monitoring programs to determine the impact of forest management practices on three sensitive plant species. Two of these programs are related to fuelwood sales and one is related to a recreational special use event. Information gained from these programs is critical to assessing impacts to these plant species and thus assuring their long-term conservation.

Protect and Improve Habitat for Sensitive Plant Species

Began implementing the Pebble Plain Habitat Management Guide as prescribed in that Guide.

Maintained and improved sensitive plant habitat protection projects. Volunteer labor, as well as Big Bear Ranger District employees in Fire Suppression, Fire Prevention, Resources and Business Management, were instrumental in this effort.

Big Bear Ranger District Resource Officer Cynthia Dimmel completed all planning and preparation for a pebble plain habitat protection project at the Upper Sugarloaf pebble plain complex. The actual work will be completed during FY 91. This project is being funded by California Department of Fish and Game Coop money.

Maintain a Diverse and Highly Trained Workforce:

- Botanists attended the following workshops and shortcourses:

  Annual R-5 Botanists Workshop/Meeting
  Threatened Endangered and Sensitive Species: The Administrative and Legal Setting
  A National Workshop on Monitoring and Evaluation
  Interpretive Sign Design
  A Short Course on Silvicultural Principles and Practices

  Information on writing Biological Evaluations from "TES Species: The Administrative and Legal Setting" was shared with biologists and botanists who were not able to attend this course.
  Information from the Monitoring and Evaluation workshop were presented at a Forest level biologists' meeting with help of Susan Sferra (Wildlife Biologist, San Gorgonio Ranger District). The compiled notes were then circulated nationwide.

SEQUOIA NF **********

1. **Did the Forest hire a botanist or seasonal(s) in FY 90?**

   The Forest hired one temporary GS-5 Botanist (Susan Carter) who worked from 3/15/90 through the end of FY 90. In addition, the Forest filled several biologist postions both on the Districts and in the SO. These persons have provided support and assistance to the Forest sensitive plant program.

2. **Did the Forest use volunteers to do plant work in FY 90?**

   The Hot Springs Ranger District used a volunteer from The Nature Conservancy (TNC), Kern River Preserve, to assist with surveys for Calochortus westonii. In addition, a meeting was held between the Hot Springs District and the Kern River Preserve manager to discuss potential volunteer projects that could be accomplished by TNC volunteers.

   The Hume Lake Ranger District had one volunteer, for four weeks, from the Save the Redwoods League who mapped Giant Sequoia groves.

   Regional Botanist, Jim Shevock, and colleagues, made several trips to the Forest to botanize. This information was added to Forest/District files.

3. **Amount and/or types of projects/acres surveyed for and numbers of biological evaluations written for sensitive plants in FY 90**

   The Forest completed 15 biological evaluations either exclusively for, or including sensitive plants.

   Approximately 30,000 acres of the Forest received a cursury survey for sensitive plants. In addition, intensive field surveys were conducted for the following:

Project Type	Estimated Acreage Surveyed
Green/Salvage TS	18 sales for 2185 acres
Recreation	4 projects for 85 acres
Range Improvement	2 projects for 5 acres
Road Relocation	2 projects for 25 acres
	Total Acres: 2300

4. **Did the Forest develop an interim or complete a species management guide as directed in the FY 90 budget direction?**

   The Forest is continuing to work on updating the species managment guide for Calochortus westonii (CAWE). A meeting was held in June 1990 with U.S. Fish and Wildlife Service and the California Native Plant Society to discuss both the short and long term management strategy for CAWE.

5. **Did the Forest complete a challenge cost-share project in FY 90? (provide specifics--who was the partner etc.)**

No

6. **$$ spent on TES plant program during FY 90 by the following funding sources**

Appropriated funds (all Forest Service sources & cost-share)	$18,140
Contributed funds & cost-share from non-Forest Service sources (Estimated funds contributed in volunteer time)	$ 2,620
Knutson-Vandenberg funds	$ -0-
Timber receipts funds	$10,160
Total Forest Plant Program	$30,830

7. **Name of sensitive plant(s) and number of new occurrences discovered in FY 90**

Cannell Meadow Ranger District: One possible new occurrence of Erigeron multiceps in Jackass drainage.
Greenhorn Ranger District: Located two new populations of Calochortus westonii.
Hot Springs Ranger District: Located five new populations of Calochortus westonii. This discovery constituted a significant range extension for CAWE, marking the first known occurrence in Tulare County.
Hume Lake Ranger District: Re-located a historic population of Eriogonum pattenianum var. avium, and found 5 new populations of same, as well as 5 populations of Delphinium inopinum in Monarch Wilderness.

8. **Other activities**

Monitoring: Several visits were made throughout the season to monitor transplanted Brodiaea insignis specimens which were transplanted along the Tule River in 1984. Photo points were set up at several locations within known populations of Calochortus westonii to monitor annual reproduction.

Stormy Fire: Considerable time and attention has been devoted to the sensitive plants which are known to occur within the burned area, most notably for Calochortus westonii. In support of our Interagency Agreement with the U.S. Fish and Wildlife Service, potential habitat for CAWE has been delineated, and will be protected until surveys are completed in the spring of 1991.

Contract Work: Jack Zaninovich is continuing with his contract work on the Bald Mountain Botanical Area.

Interpretation: Signs were designed and are currently being constructed for the Bald Mountain Botanical Area.

SHASTA-TRINITY NF **********

1. **Did the Forest hire a botanist or seasonal(s) in FY 90?**

   Yes, we hired a GS-5 seasonal botanist, Brad Penkala, for 14 weeks to assist the Forest Botanist. He worked out of the S.O. and did biological evaluations for timber sales on three districts. Brad has a B.S. in Botany from U.C. Santa Barbara and is a graduate student at Humboldt State.

2. **Did the Forest use volunteers to do plant work in FY 90?**

   Five volunteers from the California Native Plant Society set up permanent plots and took measurements for our Raillardella pringlei monitoring project (see question #8 for info). Two more CNPS members volunteered to type herbarium labels and mount specimens, and to design a new label for the Forest.

   The Range and Watershed staff group from the Shasta-Trinity S.O. volunteered for two days to build cattle exclosures for the Raillardella monitoring project described under question #8.

3. **Amount and/or types of projects/acres surveyed for and numbers of biological evaluations written for sensitive plants in FY 90**

   Surveys were performed for 23 timber sales, 4 land exchanges, 2 geothermal test well sites, and 2 recreation developments. Biological evaluations were written for all.

4. **Did the Forest develop an interim or complete a species management guide as directed in the FY 90 budget direction?**

   Draft species management guides are being prepared for Frasera umpquaensis and Cordylanthus tenuis ssp. pallescens by The Nature Conservancy as part of their FY 90 challenge cost-share contracts with the Shasta-Trinity National Forests. These are to be submitted in November 1990. Final editing is planned for completion in FY 91.

5. **Did the Forest complete a challenge cost-share project in FY 90? (provide specifics--who was the partner etc.)**

   Two CCS projects were undertaken with The Nature Conservancy as partner:

   1) Frasera umpquaensis--to conduct field survey, set up baseline monitoring program, and write draft species management guide.

   2) Cordylanthus tenuis ssp. pallescens--to conduct field survey, write draft species management guide.

6. $$ spent on TES plant program during FY 90 by the following funding sources

Appropriated funds (all Forest Service sources & cost-share)	$ 54,900
Contributed funds & cost-share from non-Forest Service sources (8645 CCS, 3635 CELP)	$ 12,280
Knutson-Vandenberg funds	$ -0-
Timber receipts funds	$ -0-
Total Forest Plant Program	$ 67,180

7. Name of sensitive plant(s) and number of new occurrences discovered in FY 90

Arctostaphylos klamathensis	1 new occurrence
Ivesia pickeringii	1
Penstemon tracyi	1
Raillardella pringlei	1
Sedum laxum ssp. flavidum	1

8. Other activities

1) Two projects were undertaken with CELP $ from the California Dept. of Fish and Game:

-Construction of three cattle exclosures in a Raillardella pringlei population to monitor the effects of grazing on the plant. Numbers and sizes of plants in paired plots inside and outside the exclosures were measured. Monitoring will continue on an annual basis until grazing effects have been evaluated. A display of photos and descriptions of the plant, the monitoring project, and the purpose of monitoring is currently on view at the S.O.

-Creation of 9 acres of new habitat for Phacelia cookei, an annual needing moderate habitat disturbance during certain times of the year. This project was done by agreement of the Shasta-Trinity and Klamath National Forests to jointly implement the habitat enhancement plan described in the Phacelia cookei Species Management Guide.

2) We provided information and other support to botanical researchers from several institutions, including:

Barbara Ertter, U.C. Berkeley; Potentilla breweri
Geraldine Allen, Univ. of Victoria; Aster
Gary Wallace, Los Angeles Natural History Museum; woody alpine plants
Michael Murray, Humboldt State Univ.; alpine communities
Debra Dunlop, Univ. of New Hampshire; Carex
Daniel Pritchett, U.C. Berkeley; Polemonium

3) We collected approximately 400 specimens, including duplicates for distribution to Cal. Academy of Sciences, U.C. Berkeley, and other herbaria.

4) Forest Botanist Julie K. Nelson held a training session for the Big Bar Ranger District and provided field ID materials for Trinity Alps wilderness rangers.

5) 40 acres of meadow and its resident Raillardella pringlei population on the Mt. Shasta District were benefited by a YCC pruning project.

SIERRA NF **********

1. **Did the Forest hire a botanist or seasonal(s) in FY 90?**

   From October 1989 through May 1990, Joanna Clines continued her employment as a temporary botanist working intermittently during her graduate coursework. On June 3, 1990, Joanna came on as a permanent, full time Forest Botanist.

   A full-time bio tech botany position was filled by Scott Wilson during the months of June and July, paid for by the salvage timber program.

2. **Did the Forest use volunteers to do plant work in FY 90?**

   Yes, we used several botany graduate students from CSU Fresno to help collect fire ecology and reproductive biology data for Carpenteria californica and to assist with sensitive plant surveys for the salvage timber program. Volunteers Bill Trayler, Scott Wilson, Susan Moore, Ken Charters, Tim Heyne, Luciana Kohatsu, and Patrick Knost volunteered when their busy schedules allowed on an intermittent basis. The value of their combined services was $1,780.

3. **Amount and/or types of projects/acres surveyed for and numbers of biological evaluations written for sensitive plants in FY 90**

TYPE OF PROJECT	# ACRES SURVEYED
3 trail projects	700
5 special use permits	300
1 Barite mine hazardous waste cleanup	50
35 salvage timber sales	53,350
TOTAL: 43 projects	54,400 acres

   A total of 51 biological evaluations were written (some projects required no surveys).

4. **Did the Forest develop an interim or complete a species management guide as directed in the FY 90 budget direction?**

   Yes, the draft species management guide for Carpenteria californica was completed and currently out for review.

   The management guide for Clarkia biloba ssp. australis has been started, but stayed on the "back burner" due to the heavy salvage workload and its lower priority endangerment status.

5. **Did the Forest complete a challenge cost-share project in FY 90? (provide specifics--who was the partner etc.)**

   No.

6. $$ spent on TES plant program during FY 90 by the following funding sources

Appropriated funds (all Forest Service sources & cost-share)	$ 25,772
Contributed funds & cost-share from non-Forest Service sources	$ 1,780
Knutson-Vandenberg funds	$ -0-
Timber receipts funds	$ 2,000
Total Forest Plant Program	**$ 29,552**

7. Name of sensitive plant(s) and number of new occurrences discovered in FY 90

SPECIES	# NEW OCCURRENCES
Camissonia sierrae ssp. alticola	46
Clarkia biloba ssp. australis	3
Collomia rawsoniana	1
Delphinium inopinum	5
Eriogonum prattenianum var. avium	1
Erythronium pluriflorum	1
Ivesia unguiculata	13
Lupinus citrinus	1
Trifolium bolanderi	9
Total # new occurrences	75

8. Other activities

SLIDE TALKS

Joanna gave slide talks on the sensitive plant program to the Forest Management Team in November. In May she visited the Minarets RD to give a slide presentation at a family meeting attended by all district employees. The other 3 districts have been solicited by the Forest Resource Officer for presentations in FY 91.

Another slide talk was given at the CNPS Quarterly board meeting by Joanna, covering the Forest sensitive plant program and wildflowers following the Powerhouse Fire.

PLANT WALKS

Joanna led 2 walks for CNPS members through the Powerhouse Fire area to view the fire annuals along with the carpenteria seedlings and resprouts.

ARTICLES ETC.

An article was contributed to the "From the desk of....." column of Fresno County Sportsmans Club newsletter. Joanna gave the Forest Botanist's view of things, a summary of the activities of the sensitive plant program, and an offer to give a slide talk.

Joanna and Scott spent a morning with a reporter from the Oakhurst newspaper, showing her Collomia rawsoniana and describing the activities and significance of the sensitive plant program. The result was a lovely, full-page article, complete with photos, in this mountain newspaper.

A paragraph describing the Carpenteria Botanical Area, along with a photo of carpenteria in full bloom, was submitted for inclusion in the new Forest Visitor Map.

SENSITIVE PLANT PROGRAM T-SHIRTS

T-shirts displaying Carpenteria on the front and "advertising" the Forest sensitive plant program and the "Let's Get Wild" program (as per the Plumas NF in 1989) were produced with financial backing from the local CNPS chapter. The first order has been sold, and we're currently making a second order, as the shirts proved quite popular.

MEMORANDA OF UNDERSTANDING WITH OTHER AGENCIES

Merced Canyon - Several meetings were held with PG&E, CDFG, Caltrans, BLM, and USFWS to work on the MOU to protect several sensitive species in the Merced River Canyon, as directed in the species management guide for Clarkia lingulata. At this stage in the process, a first draft written by John Lorenzana, sensitive plant coordinator, and Joanna has been circulated and returned with editing and comments. The cooperation has been excellent, and all parties concerned have communicated and worked well with one another. The communication this effort has opened up has been phenomenal.

Highway 168 - Meetings with Caltrans maintenance workers and environmental staff, prompted by letters of concern from CNPS, were held to consider ways of protecting Carpenteria californica and Lupinus citrinus within the highway right-of-way. This should lead to a cooperative project to provide interpretive displays for visitors to the Carpenteria Botanical Area.

FIRES

The "Savage Fire" broke out in the Merced Canyon in August, and the point of origin just happened to be in one of the only two known Clarkia lingulata populations. Joanna spent time with the mop-up crews, attempting to lessen impacts in suitable habitat as much as possible, then John and Joanna participated on the rehab team, providing input to assure no activities incompatible with the recovery of the Clarkia were prescribed. This will provide an opportunity to monitor the response of this very rare category 1 plant to fire.

CARPENTERIA RESEARCH

Joanna continues to gather data on reproductive and fire ecology for Carpenteria californica. The first seedlings known in the wild came out en masse following the Powerhouse Fire, and monitoring of seedlings and resprouts, as well as conducting experiments to describe the breeding system of carpenteria, continues to take up a considerable portion of her time.

PROTECTION OF RESEARCH NATURAL AREA

The Backbone Creek RNA was besieged by trespass cattle by July, and it became apparent that a fence was necessary to keep them away from the newly discovered Carpenteria californica seedlings. Their owner is financially unable to remove or control them, and an incredible network of bureaucracy has been surmounted (including a Decision Memo) in order to get a fence built - this should take place in October, federal budget permitting.

MISCELLANEOUS

Our sensitive plant slide collection has been growing rapidly.

Joanna and the Forest Geologist were on TV describing the recovery of the Powerhouse Fire area, making the point that nature did a fine job with little help from humans.

Interpretive materials for the districts and all field-going personnel are being worked on - for example large wall displays of general locations of sensitive plants and photos of each are being put together for each district to increase the visibility and assist district personnel in their planning efforts.

Joanna and Scott spent a day training a district meadow inventory crew in general techniques for identifying meadow plants.

SIX RIVERS NF **********

1. Did the Forest hire a botanist or seasonal(s) in FY 90?

Yes. Lisa Hoover was hired as a permanent botanist at the GS-9 level.

2. Did the Forest use volunteers to do plant work in FY 90?

Dr. Charles Moon, a senior citizen volunteer from the California Native Plant Society assisted in fencing a population of Cypripedium montanum that was threatened by cattle trampling.

3. Amount and/or types of projects/acres surveyed for and numbers of biological evaluations written for sensitive plants in FY 90?

Most of the acres surveyed were in association with the timber harvest program. Surveys were conducted on all Ranger Districts. The following are estimates of acreages covered: Orleans RD-104 acres, Mad River RD-60 acres, Lower Trinity-200 acres, Gasquet RD-30 acres. Total acres=394. Biological evaluations were not written since no sensitive plants were located on these projects.

4. Did you develop an interim or complete a species management guide as directed in the FY 90 budget direction?

No.

5. Did you complete a cost-share sensitive plant project in FY 90? (provide specifics)

Two cost-share projects are near completion at this time. A draft write-up has been submitted for both projects. One project involved the design and implementation of a monitoring plan for Lathyrus biflorus, a plant species which is known only to a single population in Humboldt County.

The second project was a survey of the Lassics Botanical Area to identify its botanical attributes. This information will be used in developing a management plan for the Botanical Area.

6. $$ spent on TES plant program during FY 90 by following funding sources

Appropriated funds (all Forest Service sources & cost-share)	$31,000
Contributed funds & cost-share from non-Forest Service sources	$ 2,080
Knutson-Vandenberg funds	$ -0-
Timber receipt funds	$ 8,000
Total Forest Plant Program	$41,080

7. Name of sensitive plant(s) and number of new occurrences discovered in FY 90

Dicentra formosa ssp. oregana	1 new occurrence
Sedum laxum ssp. flavidum	2 new occurrences

8. **Other Activities:**

In this past year, the Sensitive Plant Program on the Six Rivers has focused on establishing a closer relationship between other disciplines within the agency, between agencies and with our cooperators, particularly the California Native Plant Society.

To date, we are involved in two cost-share agreements with CNPS. The projects are in their final stages and will contribute to our information regarding monitoring of a very restricted plant species and the botanical attributes of a botanical area.

In another cooperative enterprise, we are working with CNPS and other disciplines within the agency to develop a habitat protection project for Bensoniella oregana. BEOR requires a very moist environment and is typically found growing on the edge of meadows and streams in the true fir zone. The population of concern is currently found on the edge of a gully that was formed by an ill-designed road constructed in the 1960's. The gully is a pending threat to the species.

Due to the unique nature of this project, a team of individuals representing different disciplines, was formed to design and implement this project. The disciplines involved are botany, ecology, hydrology, engineering and geology. Terry Sprieter, of Redwood National Park, is a key player in this project. She is a geologist and rehabilitation specialist with extensive experience in stream restoration. CNPS has also been involved with this project since its conception.

The project area is located within a Forest Service out-holding and therefore warranted communication with adjacent landowners for access purposes and to discuss any road work that might be needed. Although most of the landowners were not as "sensitized" to the habitat protection aspect of the project, they were glad to learn that the Forest Service was interested in repair of the gully. One landowner was so enthused about the entire project that he offered to volunteer!

Involving many disciplines and CNPS has proved challenging but has also produced a thoroughly scrutinized project which holds much promise. Dealings with CNPS representatives were handled face-to-face over the course of various meetings. Communication lines were always maintained and solutions were openly discussed. Pending resolution of their concerns with concerns of the Forest, this project is scheduled to commence during the summer months in FY 91.

In a cooperative effort the Forest Service joined with a few volunteers from the community and CNPS to fence an exclosure for the rare orchid, Cypripedium montanum. Charles Moon, a CNPS member with a special fondness for orchids and lilies, alerted the Forest's botany staff to the orchid population which had been trampled by cattle. After determining that the population was on private land--an inholding surrounded by USFS lands--owner contact was made. With permission of the landowner, the population was fenced with the assistance of volunteers.

With the goal of improving the long-term status of California's natural areas, the Forest Service has joined with other agencies and organizations to form an Interagency Natural Areas Coordinating Committee. The Interagency Committee is headed by the California Department of Fish and Game's Natural Areas Program. Representing the Sensitive Plant Program, I sit on a local coordinators' committee which will meet regularly to discuss regional concerns about natural area issues, exchange information about the status of natural areas (of which Botanical Areas are included), identify gaps in the analysis and prioritize sites for improving long-term management. Opportunities made available to the Sensitive Plant Program by this committee include a more coordinated approach to species management which does not stop at the Forest Service boundary and an arena to share information by working closely with other agencies and environmental organizations.

STANISLAUS NF **********

The Stanislaus National Forest sensitive plant program accomplishments increased considerably in FY 90 due to the great cooperation from the district biologists, district timber management staff, and hard work done by the seasonal botanists in the field. Read on:

1. **Did you hire a botanist or seasonal(s) in FY 90?**

The Stanislaus NF hired a temporary biological technician, Peg Carkeet. She was responsible for project sensitive plant surveys of Summit, Mi-Wok and Calaveras Districts. Groveland Ranger District hired Jennie Haas as a NTE 1-year Botanist. She continued surveys of reforestation projects in the Stanislaus Complex Burn, did surveys for other District projects, and wrote biological evaluations for those projects. The Groveland District also had four foresters help survey biomass projects. John Rivera, a botanist working for the Zone Ecologist, assisted Groveland and Summit Districts, working overtime on his days off. District Biologists on Calaveras, Mi-Wok and Summit Districts wrote the sensitive plant biological evaluations. Summit RD Wildlife Biologist Kathy Burnett also worked part time in the sensitive plant program, providing technical supervision for Peg Carkeet and John Rivera, and coordination with other District Biologists. She also completed the Erythronium tuolumnense Interim Management Guide, started FY 89 by Jennie.

2. **Did you use volunteers to do plant work in FY 90?**

We had three volunteers work for us: Brent and Tristan Carkeet helped Peg Carkeet in field surveys; Patti Wilson, a California Native Plant Society member, did some surveys for Calaveras Ranger District.

3. **Amount and/or types of projects/acres surveyed for and numbers of biological evaluations written for sensitive plants in FY90.**

The Stanislaus surveyed 42 projects, totalling 18,190 acres and 166 miles. The majority of the projects surveyed were for reforestation, biomass, salvage and green timber sales. Other projects surveyed included a radio transmitter site, OHV Enduro Route, Rails-to-Trails Mountain Bike/Equestrian trail, Emigrant Wilderness Trail Improvement, OHV Staging Area, a land exchange and an herbicide experiment site. In addition, a general botanical inventory was done for an herbicide experiment site, and two areas (not associated with specific projects) were surveyed for Silene invisa. Altogether, 24 Biological Evaluations were written for sensitive plants in FY 90. By district:

Summit R.D.	8 projects	1695 acres	30 miles
Calaveras R.D.	13 projects	3525 acres	
Mi-Wok R.D.	7 projects	5556 acres	130 miles
Groveland R.D.	14 projects	7414 acres	

4. **Did you develop an interim or complete a species management guide as directed in the FY 90 budget direction?**

The Stanislaus completed an Interim Species Management Guide for Erythronium tuolumnense.

5. **Did you complete a cost-share sensitive plant project in FY 90?**

The Summit Ranger District completed a Challenge Cost-Share project with the California Native Plant Society, where the Forest Service provided materials and CNPS provided the labor. The project involved constructing a boardwalk across a meadow, connecting the Meadowview Campground with the Trail-of-the-MiWoks and the ranger station. The project also includes an interpretive pamphlet about meadow wildflowers, the value of meadows and importance of protecting meadows.

6. **$$ spent on TES plant program during FY 90 by the following funding sources:**

Appropriated funds (all Forest Service sources & cost-share)	$18,828
Contributed funds & cost-share from non-Forest Service sources	2,300
Knutsen-Vandenberg funds	-0-
Timber receipts funds	1,500
Total Forest Plant Program	$22,628

7. **Name of sensitive plant(s) and number of new occurrences discovered in FY 90.**

Sensitive Species	Occurrences	District
Allium tribracteatum	10	Mi-Wok
Clarkia australis	59	Groveland
Eriophyllum congdonii	1	Groveland
Erythronium tuolumnense	6	Mi-Wok
Lomatium stebbinsii	14	Mi-Wok
Silene invisa	3	Calaveras
Silene invisa	1	Summit
Total:	94	

8. **Other Activities:**

1. The Forest sponsored a field trip with the Sierra Foothills Chapter of the California Native Plant Society to a proposed botanical special interest area on Trumbull Peak, Groveland Ranger District.

2. Jennie Haas presented a slide program of the Groveland District sensitive plants at a District family meeting.

3. Kathy Burnett showed a slide program of Stanislaus National Forest sensitive plants to the Sierra Foothills Chapter of the California Native Plant Society.

4. Peg Carkeet prepared a field guide of SNF sensitive plants for non-botanical field personnel to use.

5. Peg Carkeet updated SNF sensitive plant atlas and files.

6. Peg Carkeet and Kathy Burnett attended a Red Fir Workshop presented by the Zone Ecologist. The workshop was held to familiarize people with the Ecosystem Classification guide and to provide comments and input to the Red Fir Ecosystem Classification key and guide.

TAHOE NF **********

1. **Did the Forest hire a botanist or seasonal(s) in FY 90?**

   The forest hired one seasonal botanist this year.

2. **Did the Forest use volunteers to do plant work in FY 90?**

   The Tahoe had two volunteers this year who contributed over 340 hours of plant work in photography, plant identification and plant surveys.

3. **Amount and/or types of projects/acres surveyed for and numbers of biological evaluations written for sensitive plants in FY 90**

   The TNF surveyed over 32,000 acres for salvage sales, 3,000 acres for green timber sales, 50 acres for special uses, 100 acres for mining projects, 200 acres for recreation projects, 100 acres for land exchange, 5 acres for wildlife projects and 10 acres for road right-of-ways. Over 65 biological evaluations were written.

4. **Did the Forest develop an interim or complete a species management guide as directed in the FY 90 budget direction?**

   The forest did not complete an interim/species management guide because the draft that was reviewed last year is now being written to incoorporate two other sensitive species. We have completed a draft-draft of an interim management guide with the Plumas and Toiyabe for Ivesia aperta var. aperta, Ivesia aperta var. canina, and Ivesia sericoleuca.

5. **Did the Forest complete a challenge cost-share project in FY 90? (provide specifics--who was the partner etc.)**

   The TNF completed a challenge cost-share with The Nature Conservancy and the Plumas National Forest for an ecological survey and status report of Ivesia webberi.

6. **$$ spent on TES plant program during FY 90 by the following funding sources**

Appropriated funds (all Forest Service sources & cost-share)*	$70,000.00
Contributed funds & cost-share from non-Forest Service sources	$ 2,000.00
Knutson-Vandenberg funds	$ 2,000.00
Timber receipts funds	$ -0-
Total Forest Plant Program	$74,000.00

   * The forest timber management support provided $50,000 for plant surveys.

7. **Name of sensitive plant(s) and number of new occurrences discovered in FY 90**

Ivesia aperta var. aperta	6 occurrences
Ivesia sericoleuca	3 occurrences
Lewisia cantelowii	1 occurrence
Lewisia pygmaea ssp. longipetala	1 occurrence
Lewisia serrata	1 occurrence
Phacelia stebbinsii	1 occurrence
Silene invisa	Over 100 occurrences
Vaccinium coccinium	2 occurrences

8. **Other activities**

Over 100 people from districts and the supervisors office were trained in sensitive plant identification and the workings of the sensitive plant program.

A sensitive plant T-shirt was created to raise the visability of the sensitive plant program on the Tahoe NF.

Ten populations of Silene invisa were monitored for plant vigor and reproduction. The Tahoe now has three years worth of monitoring data on this species. The annual, Phacelia stebbinsii, was monitored for distribution and occurrence. Two exclosures were constructed to monitor the effects of grazing on Ivesia sericoleuca. The other sensitive plant populations on the sensitive plant list were revisited to monitor occurrence and possible threats.

Plant personnel were also active in many other areas of forest management; some examples follow.

Herbariums were established on the Downieville and Sierraville Districts.

We began collecting data on the effects on prescribed burning on plant communities (wildlife burns).

We began inventory work for special plant communities (pacific yew and bog/fens).

Botanical inventory work was done for wild and scenic river classification of Tahoe rivers and streams.

We successfully recruited a graduate student to do a plant study on one of the sensitive plants that occurs on the Tahoe.

The Forest Botanist and Sensitive Plant Coordinator interacted on numerous ID teams and meet with various groups to help avoid appeals on the Forest Plan based on plant issues. We began work on plant community surveys in a pilot project on New Prospectives in forest management. Both the Sensitive Plant Coordinator and Forest Botanist are active on the Tahoe's Rehabilitation Recovery Team. The Forest Botanist is active in air quality issues, specifically lichen studies in the wilderness.